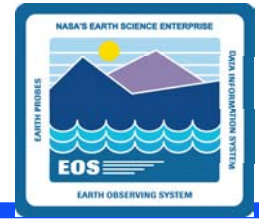


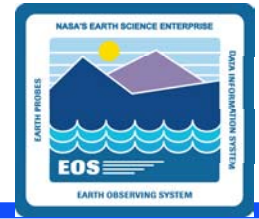
ECS SDP Internal Training

Objectives



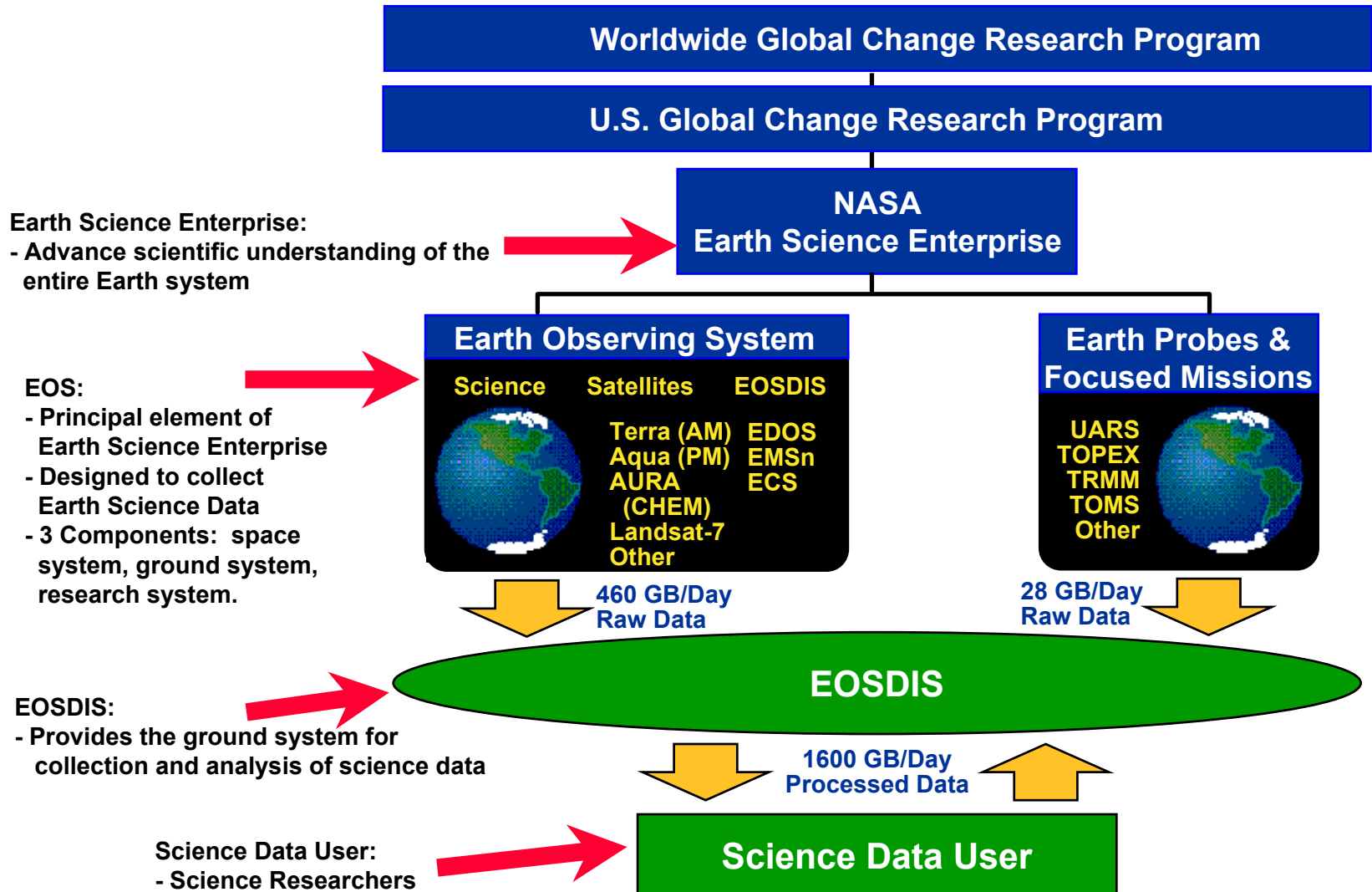
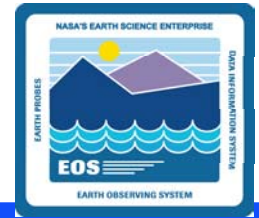
- **Overall objective: Describe ECS structure and function for Science Data Processing (SDP)**
 - **Identify subsystems and Computer Software Configuration Items (CSCIs)**
 - **Specify major components and functions/processes of CSCIs**
 - **Describe role of CSCIs/functions/processes in the context of ECS operational scenarios**
 - **ASTER-specific functions (e.g., DAR, expedited data support)**
 - **Producing and distributing data products (including media)**
 - **Updating QA metadata**
 - **On-demand processing**
 - **User registration**
 - **Landsat data insertion and access**

What This Lesson Is (and Is Not)

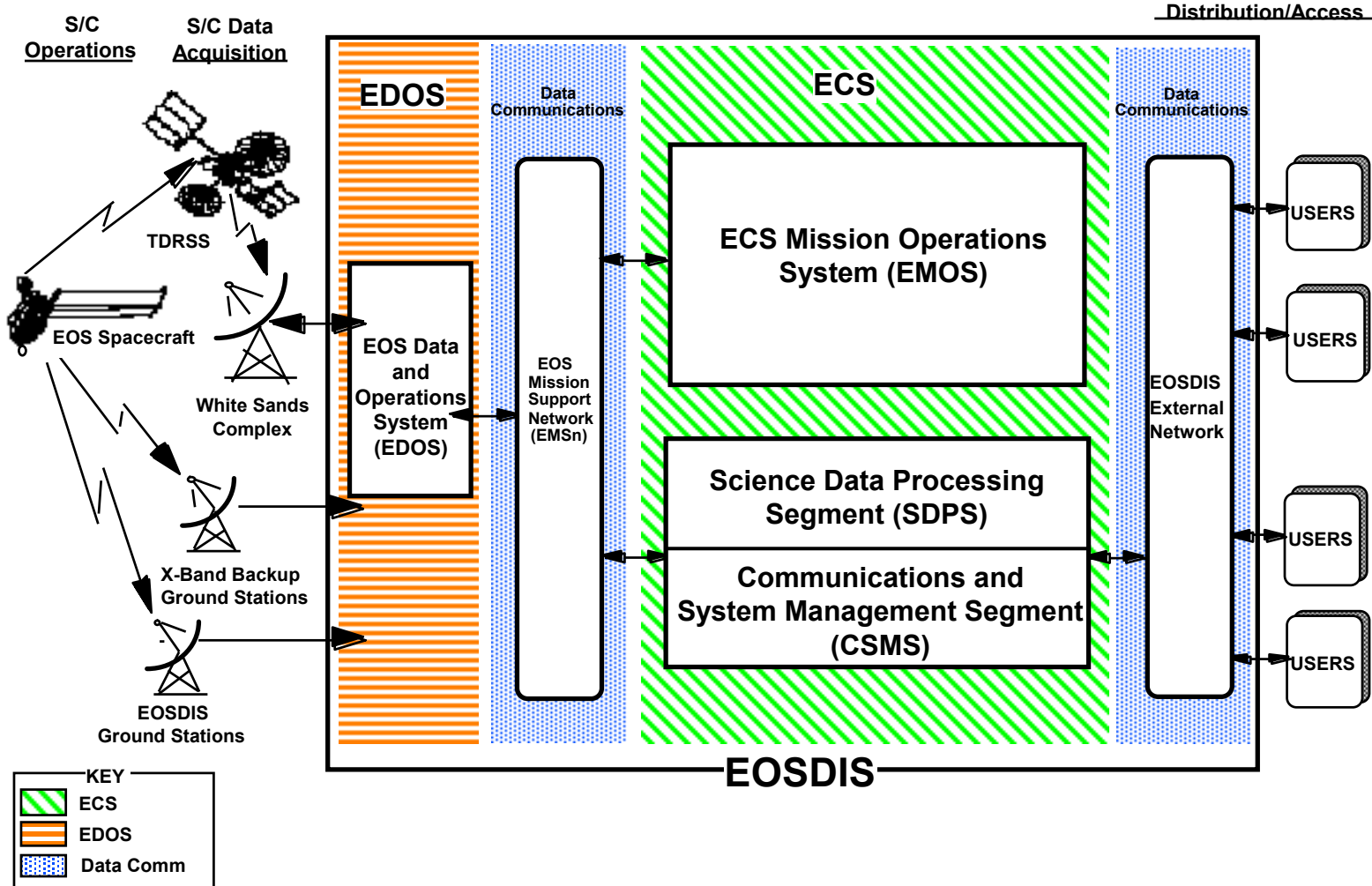
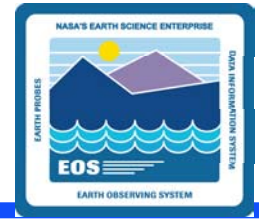


- **Is**
 - Brief illustration of ECS high-level structure
 - Introduction to subsystems that make up ECS at a site
 - Examination of each subsystem and its Computer Software Configuration Items (CSCIs), with components
 - Introduction of all system elements and brief description of functions
 - Background for subsequent scenario-based presentation of system functional flows
 - Detailed look at system functioning in the context of operational scenarios
- **Is Not**
 - Full description of overall ECS structure and function
 - Description of specific individual ECS entities (e.g., SMC)
 - Software development lesson
 - Complete description of interfaces and event sequences
 - Operations training

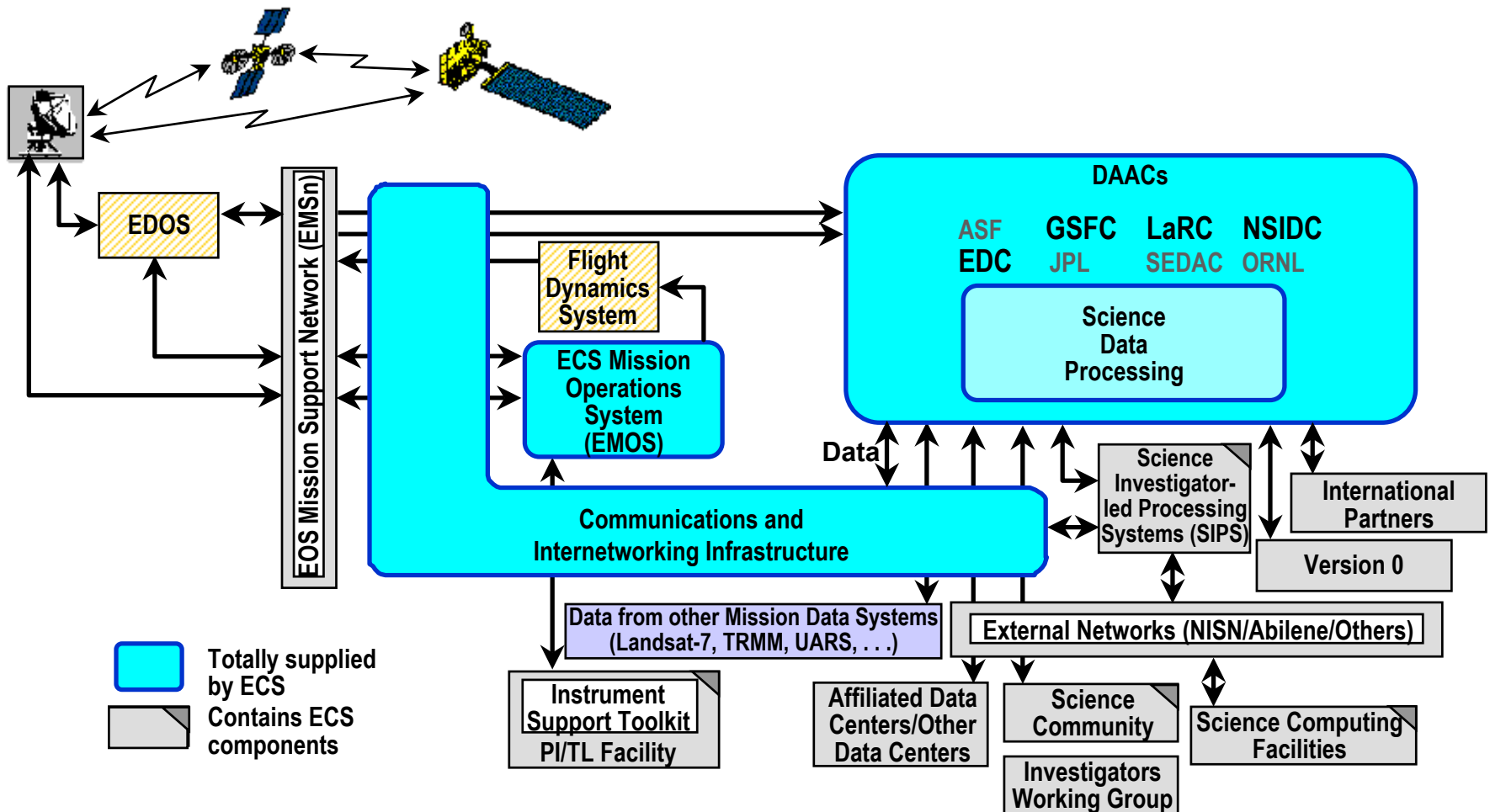
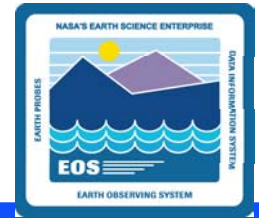
Program Overview



EOSDIS Principal Components



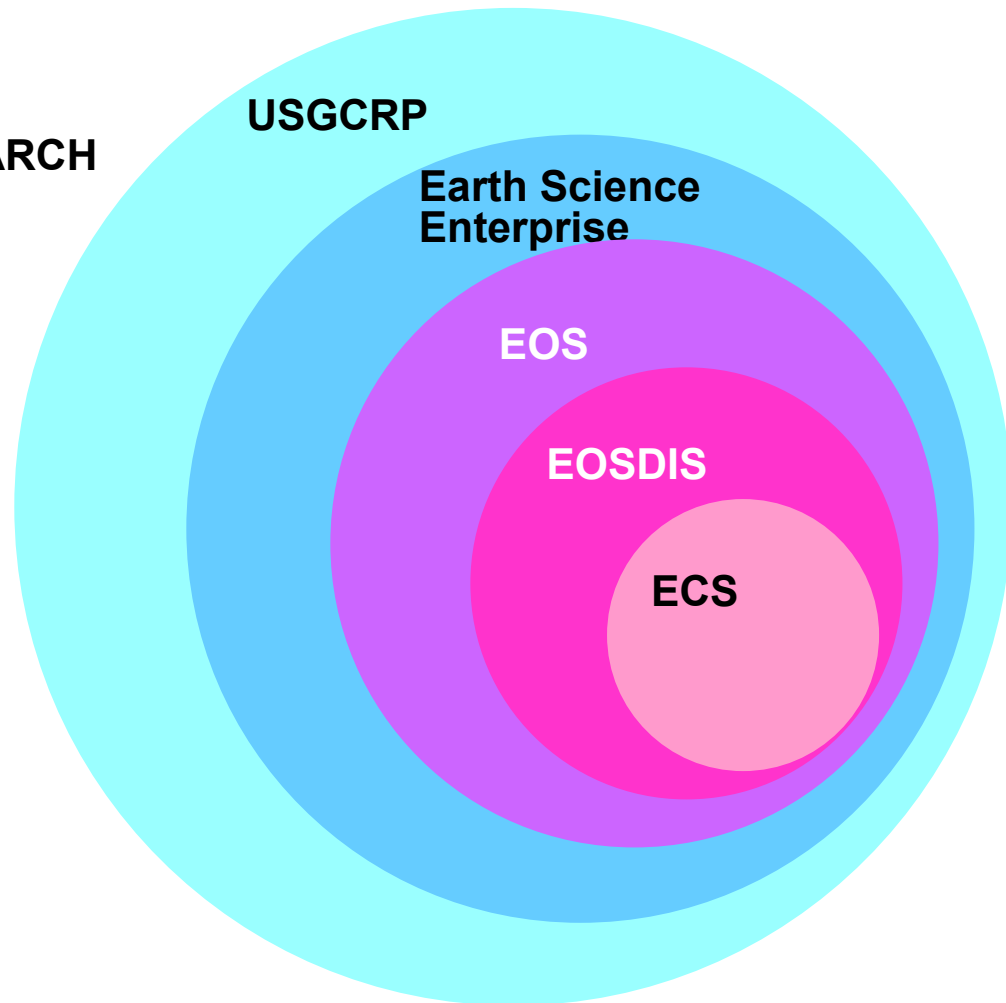
EOSDIS Data Flow



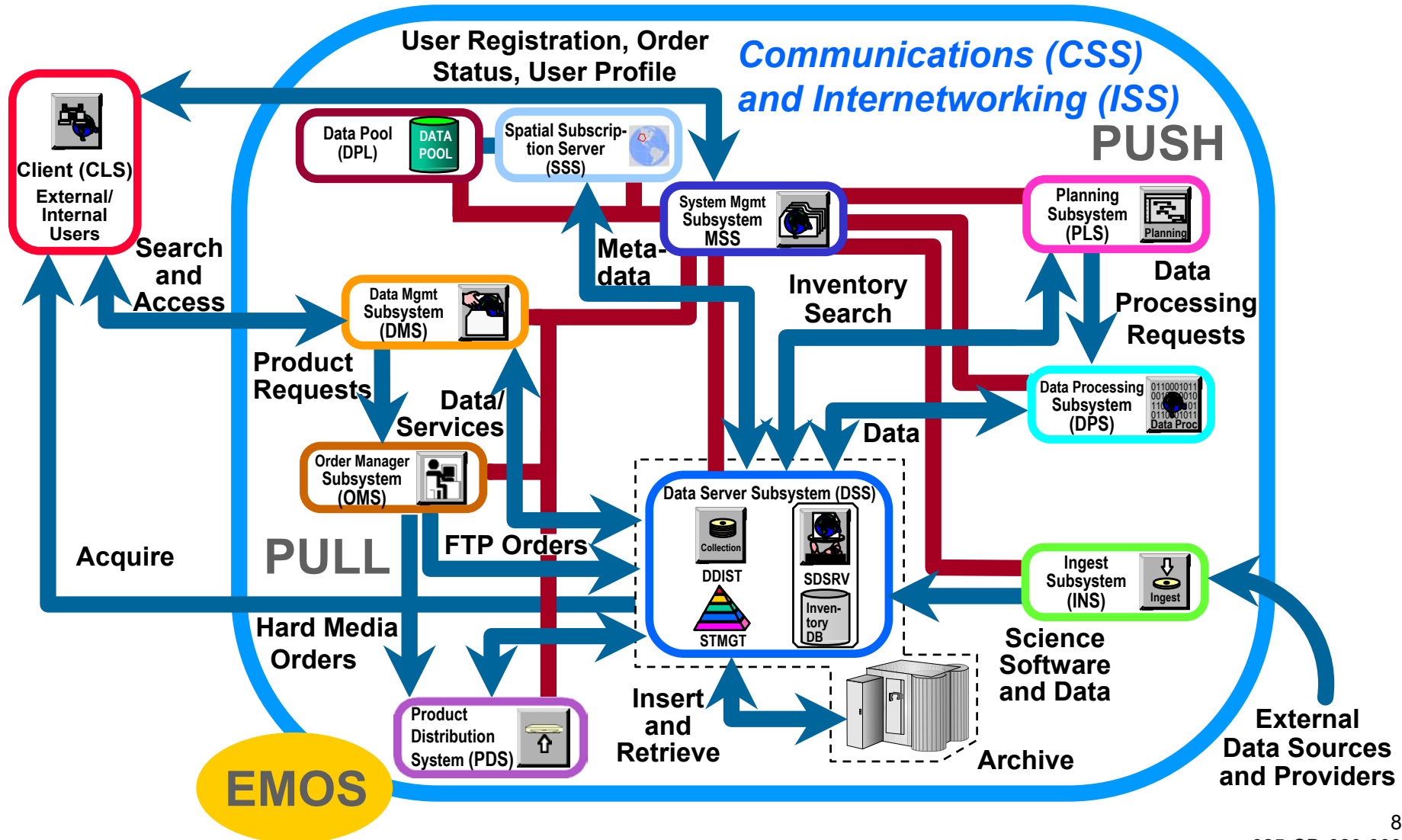
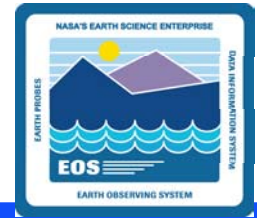
Relationship of ECS to Global Change Research



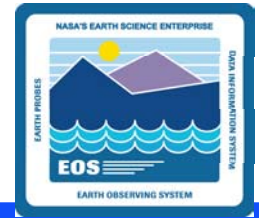
**WORLDWIDE
GLOBAL CHANGE RESEARCH**



ECS SDP Context



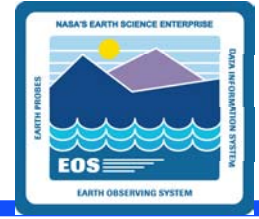
Subsystems and Functions



Science Data Processing Segment (SDPS)

- **Data Server Subsystem (DSS)**
 - Data storage and management: archive science data (with related insert, search and retrieve functions), archive management, data resource staging
- **Product Distribution System (PDS)**
 - Service for hard media orders, in conjunction with DSS and OMS
- **Ingest Subsystem (INS)**
 - Interface with external data providers and transfer data into ECS (with related staging functions and operator interfaces)
- **Spatial Subscription Server (SSS)**
 - Creation and management of subscriptions for data distribution/notification and for Data Pool insert

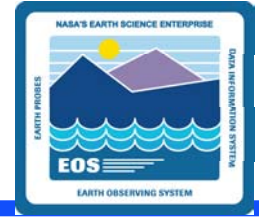
Subsystems and Functions (Cont.)



SDPS (Cont.)

- **Data Pool (DPL)**
 - Provides on-line access for browsing and FTP download of selected granules, metadata, and browse data
- **Client Subsystem (CLS)**
 - Provides interfaces and access for external users
- **Data Management Subsystem (DMS)**
 - Enables cross-site data search and retrieval; gateway for interface of ECS with EOS Data Gateway Web Client (Version 0 IMS) protocol Order Manager Subsystem (OMS)
 - Manages orders from EDG and other sources, distributing them to appropriate ECS services (SDSRV, PDS)

Subsystems and Functions (Cont.)



SDPS (Cont.)

- **Planning Subsystem (PLS)**
 - Long- and short-term planning of science data processing, and management of production resources
- **Data Processing Subsystem (DPS)**
 - Dispatches and monitors execution of science software

Subsystems and Functions (Cont.)

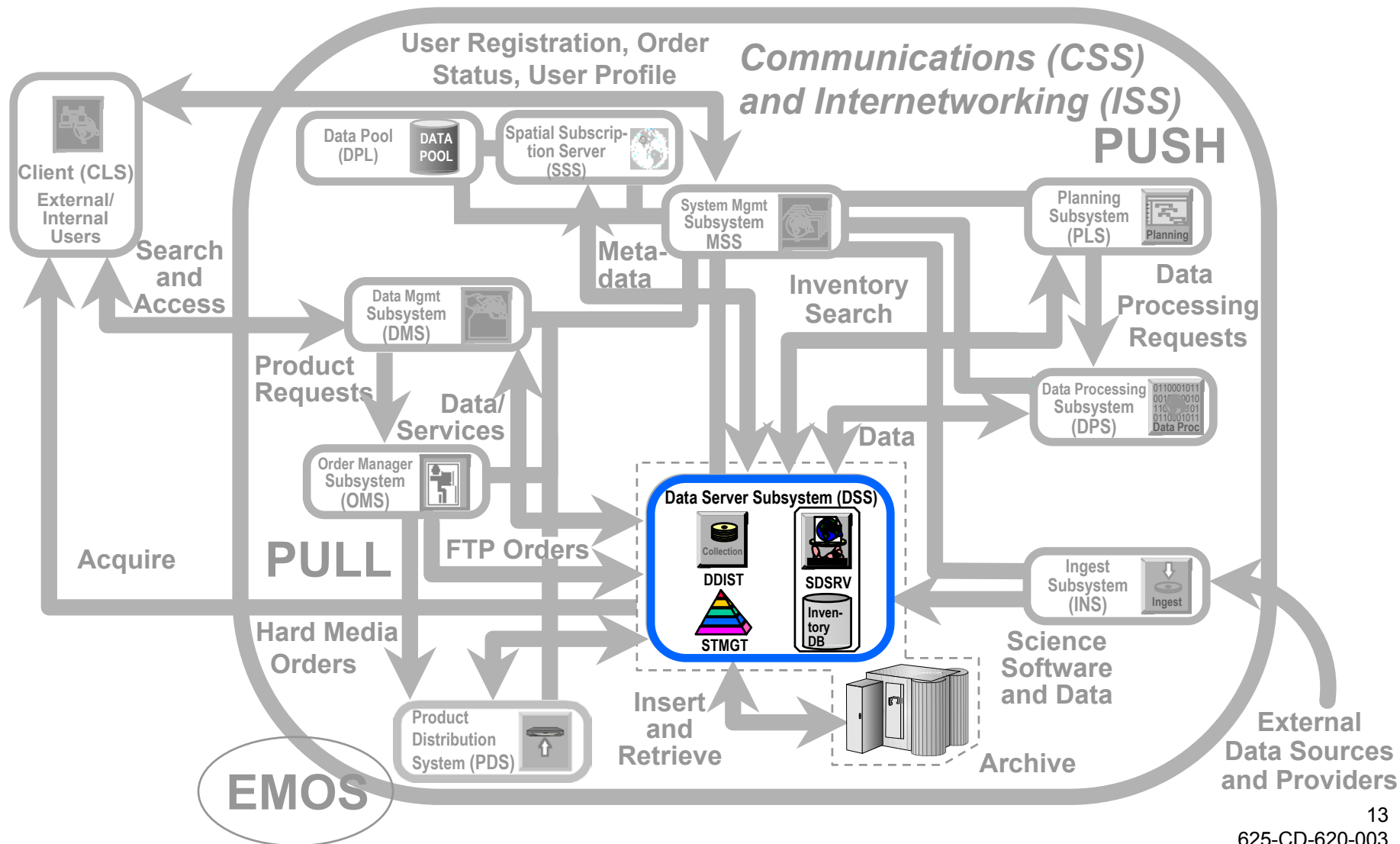
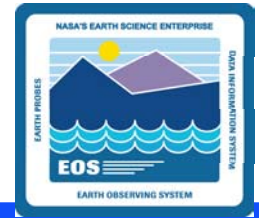


Communications and System Management Segment (CSMS)

- **System Management Subsystem (MSS)**
 - System maintenance, management, and administration (includes trouble ticketing, baseline and configuration management, fault and performance monitoring, and user account management and order management)
- **Communications Subsystem (CSS)**
 - General system infrastructure functions (includes network communications, libraries to standardize software mechanisms, application error handling, subscription service, interfaces to e-mail, file transfer and file copy)
- **Internetworking Subsystem (ISS)**
 - Networking hardware devices and embedded software

NOTE: The ISS is part of the ECS infrastructure and is not addressed in detail in this course.

Subsystems and CSCIs: DSS

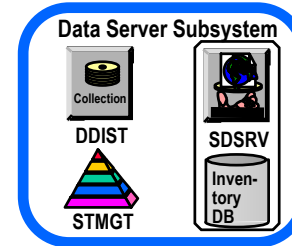


Subsystems and CSCIs: DSS (Cont.)



- **Data Server Subsystem (DSS)**

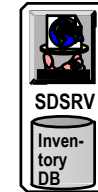
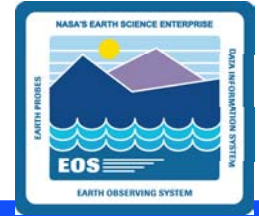
- Provides capabilities to store, search, retrieve, and distribute earth science and related data
- Client-server information transfer is by commands and requests
- Generates Universal References to identify ECS entities
 - Granule UR: represents a granule in the data server (e.g., as follows)
 - Server UR: represents a specific running data server application (e.g., [DsShSciServerUR](#))
- Interfaces with virtually all ECS subsystems and components
- Uses several COTS tools: RogueWave tools and libraries, Sybase relational database, Spatial Query Server



A granule is the smallest piece of data that is independently managed by the system, i.e., represented by a record in the inventory.

[UR:10:DsShESDTUR:UR:15:DsShSciServerUR:13:\[GSF:DSSDSRV\]:16:SC:MOD10_L2:1411](#)

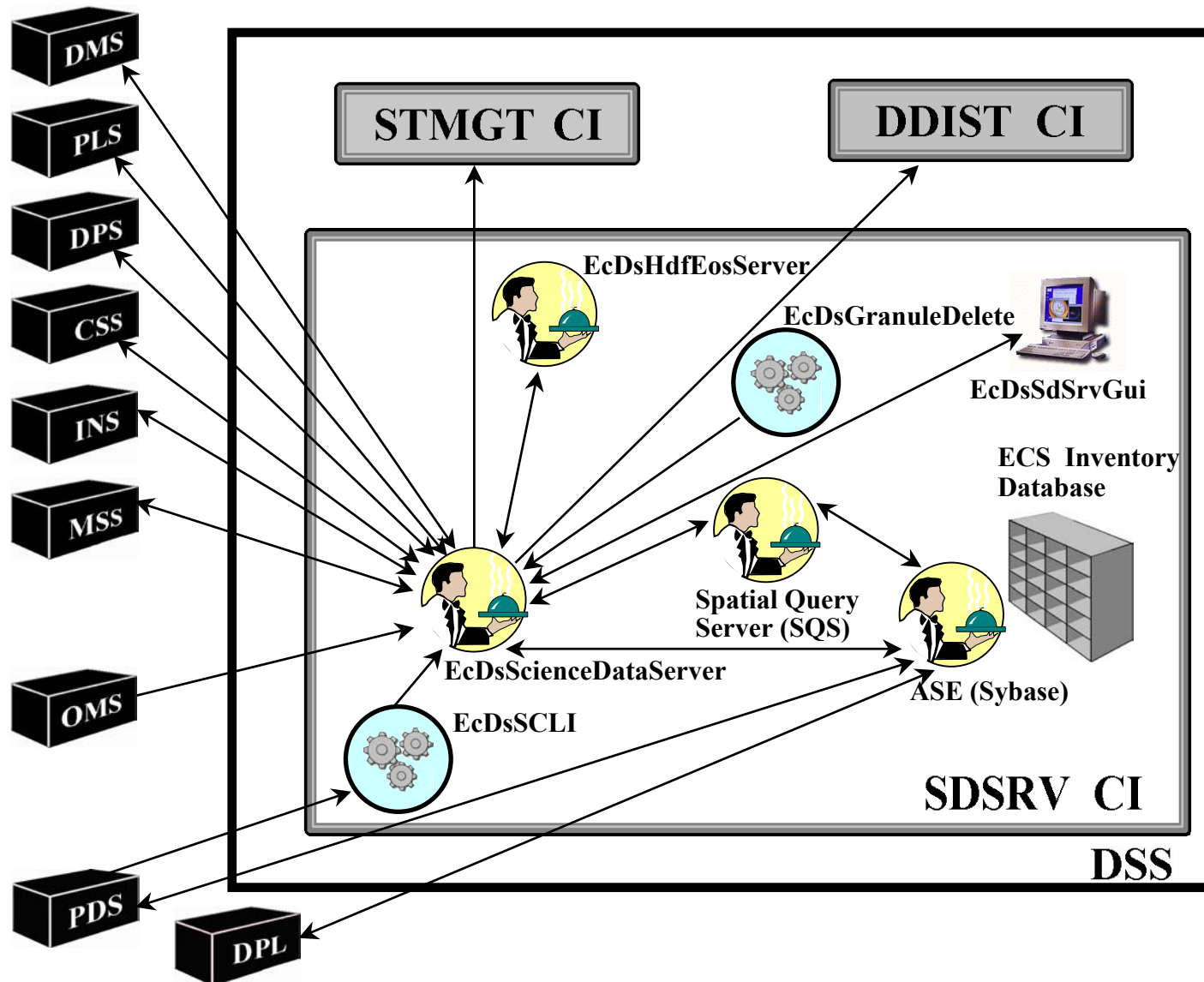
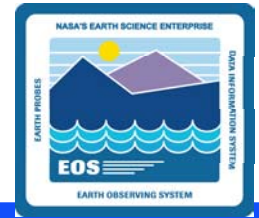
Subsystems and CSCIs: DSS (Cont.)



- **Science Data Server (SDSRV) CSCI**
 - Provides the ECS with a catalog of Earth Science Data holdings, and the Earth Science Data Type (ESDT) services that operate on the data
 - Manages and provides user access to data collections through its catalog of metadata and mechanisms to acquire data from the archive
 - Seven major components
 - **Science Data Server** - services requests for storage, search, retrieval, and manipulation of science data
 - **HDF EOS Server** - provides science data subsetting
 - **Science Data Server GUI** - provides operator interface
 - **Granule Deletion Administration Tool** - provides a command-line interface for deleting granules
 - **Science Data Server Command Line Interface (SCLI)** - provides interface to the S4PM processing system and the Product Distribution System (PDS)
 - **Sybase ASE Server** - manages catalog (metadata)
 - **SQS Server** - manages catalog (specialized spatial searches)

Subsystems and CSCIs: DSS (Cont.)

SDSRV Architecture and Interfaces



Subsystems and CSCIs: DSS (Cont.)



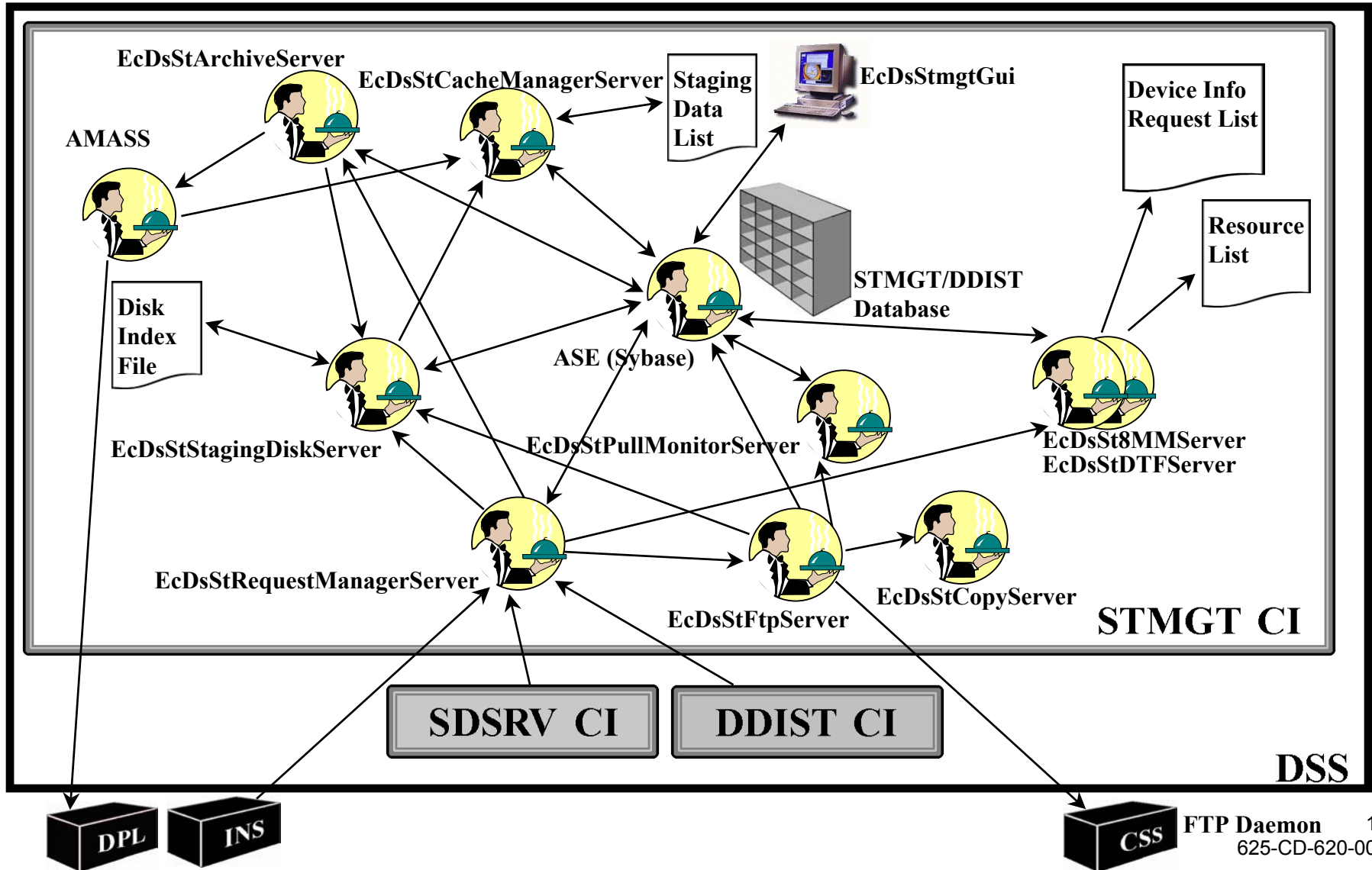
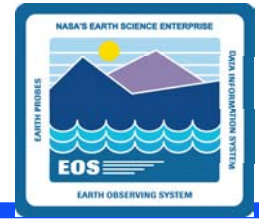
- **Storage Management (STMGT) CSCI**



- Stores, manages, and retrieves data files on behalf of other science data processing components
- Six major components
 - **Archive Server** - provides GUI and access to stored data
 - **Cache/Staging Manager** - Cache Manager server and Staging Disk server manage data files that have been retrieved from the archive and placed into a cache area on staging disk
 - **Media Server Process** - schedules access to shared peripheral resources (FTP, secure copy) and devices for Ingest (8mm, DTF-2)
 - **Pull Monitor** - links to Cache Manager to manage files in the user pull area, deleting them as they are retrieved by users or as their time-out periods expire
 - **Request Manager** - routes requests from clients to servers
 - **Data Base** - contains data tables for STMGT devices, cache management, event and log management, requests, and related functions

Subsystems and CSCIs: DSS (Cont.)

STMGT Architecture and Interfaces



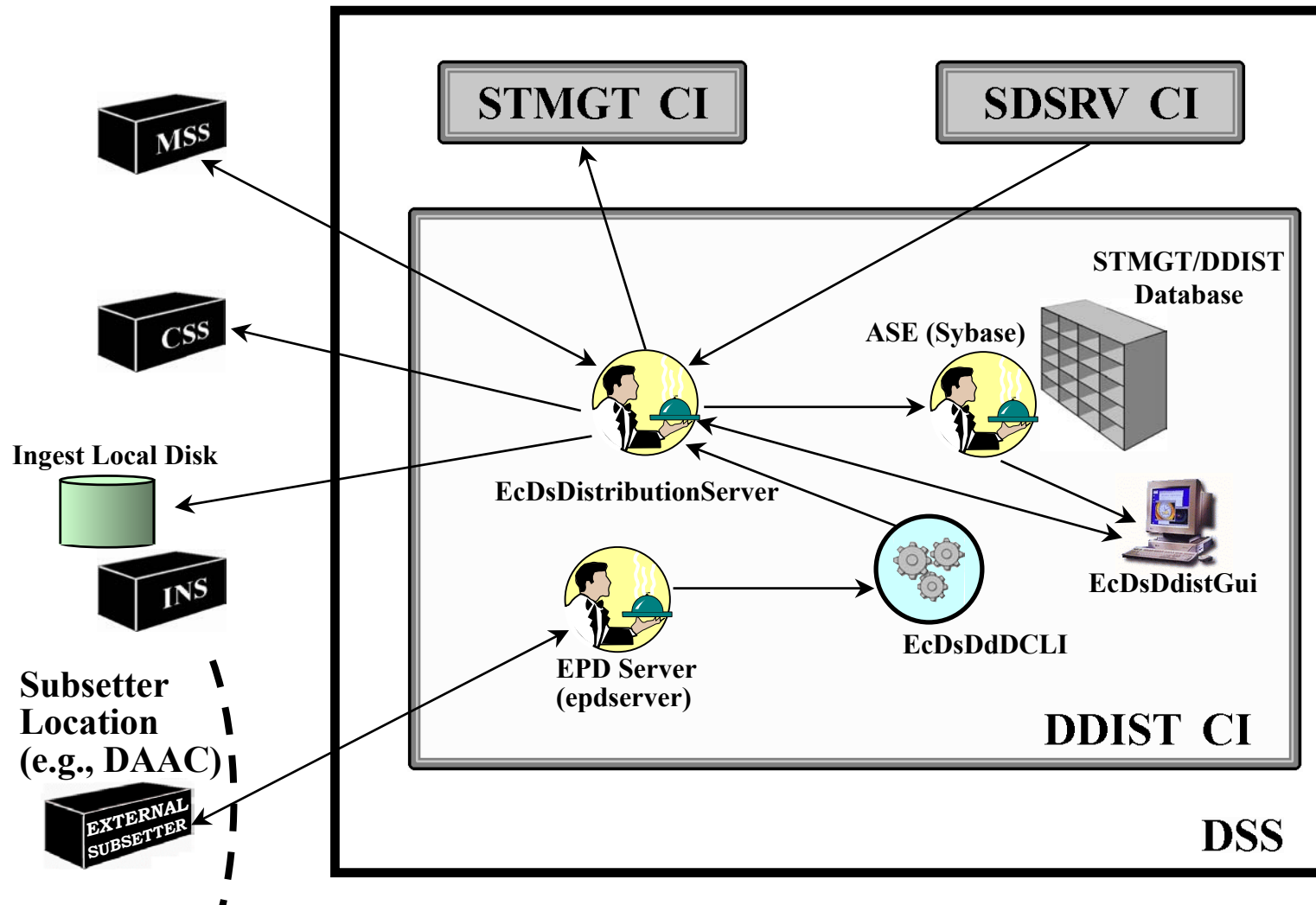
Subsystems and CSCIs: DSS (Cont.)



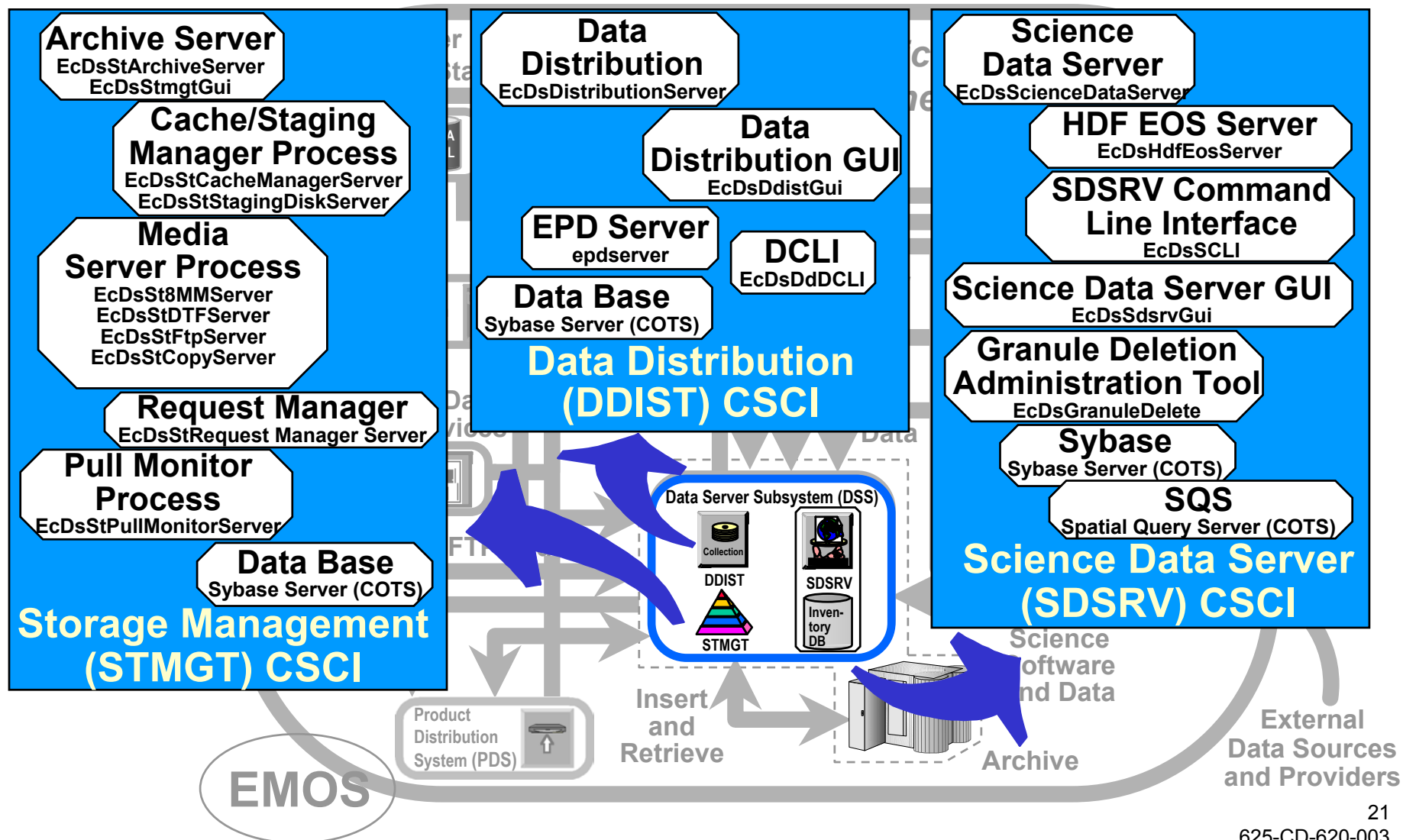
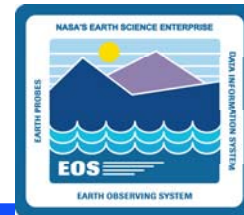
- **Data Distribution (DDIST) CSCI**
 - Monitors and controls processing of requests for internal and external electronic distributions; distributions on physical media (8mm tape, CD-ROM, DVD, Digital Linear Tape) are handled as Product Distribution System (PDS) requests via FTPPush onto a PDS working directory, from which PDS reads the data for copy to hard media
 - Sends e-mail notifications
 - Supports distribution of externally subsetted products
 - Five major components
 - **Data Distribution Server** - provides control and coordination for data distribution through request processing
 - **Data Distribution GUI** - allows operations staff to initiate, track, and manipulate distribution requests
 - **Data Base** - contains the request list; updates and provides the request configuration
 - **External Product Dispatcher (EPD)** - receives products from external subsetter and transfers them via DCLI to DDIST
 - **DDIST Command Line Interface (DCLI)** - submits distribution requests for distribution of externally subsetted products

Subsystems and CSCIs: DSS (Cont.)

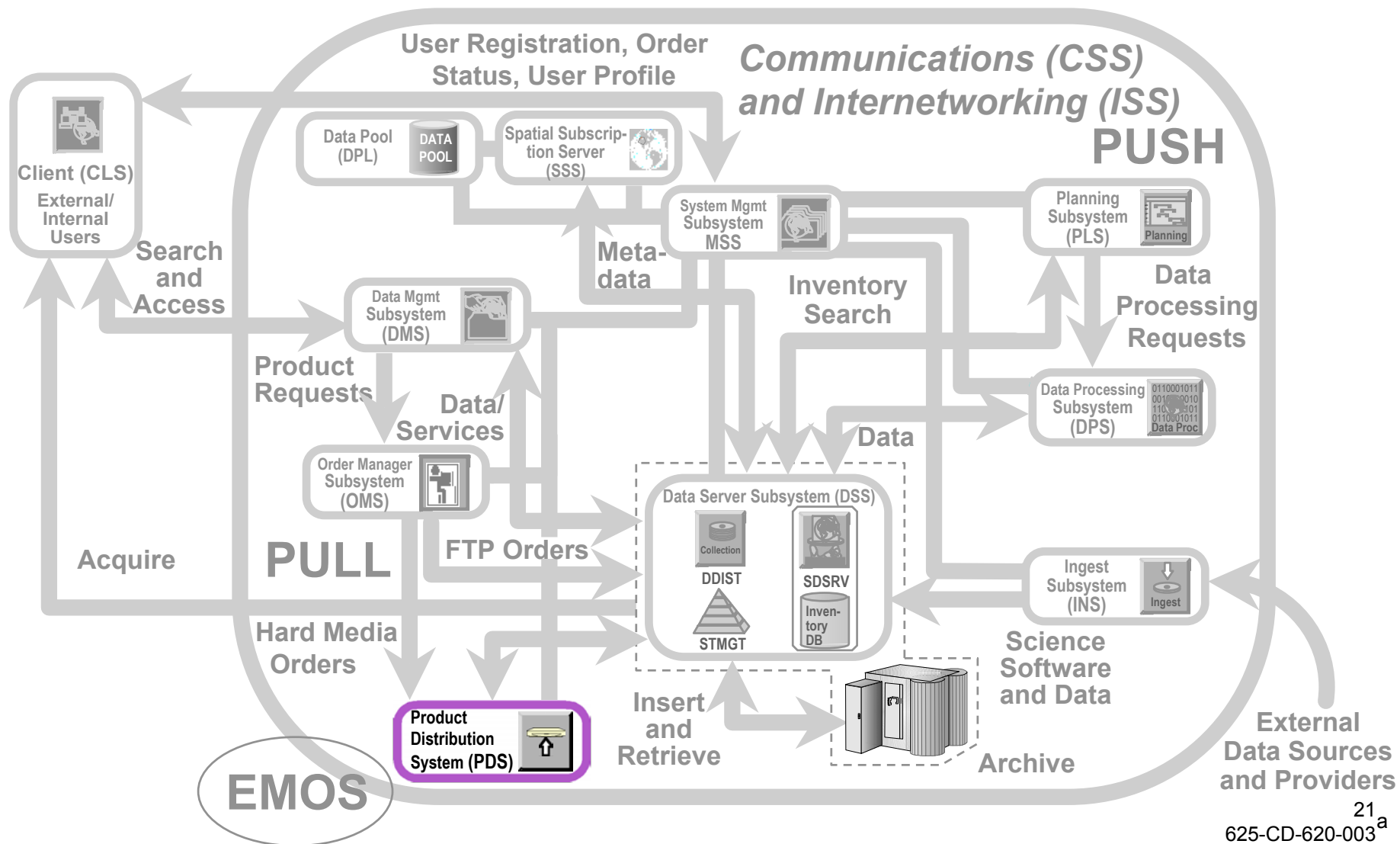
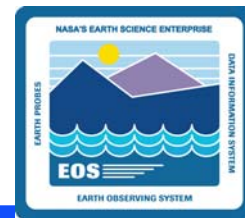
DDIST Architecture and Interfaces



Subsystems and CSCIs: DSS (Cont.)



Subsystems and CSCIs: PDS



Subsystems and CSCIs: PDS (Cont.)

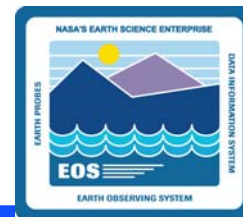


- **Product Distribution System (PDS)**



- Provides product distribution support on the following types of physical media:
 - » Compact disk (CD)
 - » DVD
 - » Digital linear tape (DLT)
 - » 8mm tape
- Generates other media-related items:
 - » Media labels
 - » Jewel-box inserts (for products on CD or DVD)
 - » Shipping labels
 - » Packing lists
- Supports media quality check (QC) before shipment

Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System (PDS) (Cont.)**
 - **Sends Distribution Notice (DN) to customer via e-mail**
 - **Provides storage for up to 438GB of digital data**
 - **Provides a production capability in a 24-hour time period equivalent to 535GB of digital data**
 - **Two principal elements:**
 - » **Product Distribution System Interface Server (PDSIS)**
 - » **Product Distribution System Stand Alone (PDSSA)**
 - **Uses several COTS tools: Oracle relational database management system, Rimage PowerTools, Rimage Production Server**

Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System Interface Server (PDSIS)**
 - Provides the interface between ECS and the PDSSA in accordance with the applicable Interface Control Documents (ICDs) and system specifications
 - Accepts multiple digital product requests in the form of Object Description Language (ODL) files from the Order Manager Server (OMS)
 - Requests digital product data from ECS in product request parameter files that are sent via the Science Data Server (SDSRV) Command Line Interface (SCLI)
 - Receives digital product data from ECS via ftp push
 - Coordinates PDSSA processing to include detection and resolution of data transfer problems, data flow control, and order recovery

Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System Interface Server (PDSIS) (Cont.)**
 - **Generates packaging and shipping artifacts**
 - Packing lists
 - Shipping labels
 - E-mail distribution notices
 - **Eight major components**
 - **PDSIS Operator Interface (PDSIS OI)** - provides the primary means by which the operator monitors and controls order processing
 - **PDSIS Maintenance Module** - provides an additional means by which the operator can respond to problems with order processing
 - **PDSIS Server (ECSPDSServer)** - detects hard media distribution request from ECS and inserts data concerning the request into the PDS database

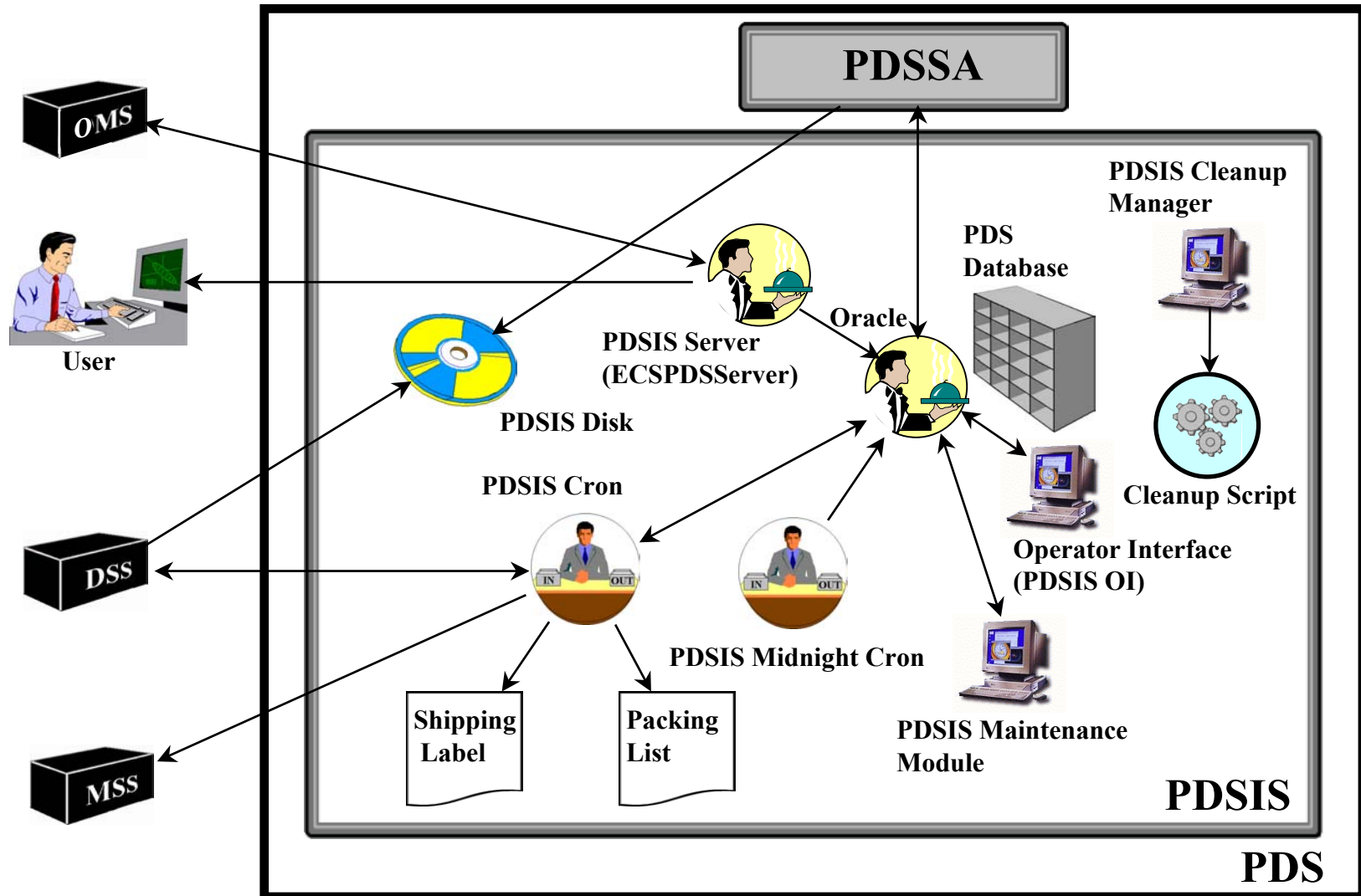
Subsystems and CSCIs: PDS (Cont.)



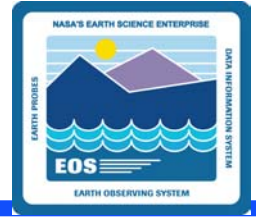
- **Product Distribution System Interface Server (PDSIS) (Cont.)**
 - **Eight major components (Cont.)**
 - **PDSIS Cron** - at regular intervals spawns threads (as necessary) to handle acquire requests to ECS, printing of shipping documents, ECS order-tracking database updates, and a number of other PDSIS activities
 - **PDSIS Midnight Cron** - performs database maintenance and updates log files at regular intervals
 - **PDSIS Cleanup Manager** - GUI used for specifying a cleanup strategy and generating a Bourne shell script to implement the strategy
 - **Cleanup script** - script invoked via cron to implement the PDSIS cleanup strategy
 - **Oracle database server** - manages PDS order and job data for both PDSIS and PDSSA

Subsystems and CSCIs: PDS (Cont.)

PDSIS Architecture and Interfaces



Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System Stand Alone (PDSSA)**
 - Transfers digital products to physical media
 - Acquires digital products from disk, resolves and detects transfer problems, and re-pulls data
 - Transfers digital products to any of the following types of physical media:
 - » CD-ROM
 - » DVD-ROM
 - » High-density 8mm tape
 - » DLT 7000c
 - Prints labels for tape products; prints labels on CD-ROM and DVD-ROM; and prints jewel case inserts
 - » Labels include basic order-level information (e.g., Order #, Req_ID, date)

Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System Stand Alone (PDSSA) (Cont.)**
 - Removes digital source files upon completion of a media product
 - Supports management of PDSSA data, job status, and reports
 - Supports management of PDSSA operations through operator interfaces
 - Eleven major components
 - **PDS Operator Interface (PDSOI)** - provides the primary means by which the operator monitors and controls job processing
 - **PDS Job Monitor (JOBMON)** - acts as the interface for the operator to have a graphical view of system resources, as well as to have the capability to check the status of current production jobs in some detail

Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System Stand Alone (PDSSA) (Cont.)**
 - **Eleven major components (Cont.)**
 - **PDS Verification Tool (ckwin)** - provides an operator interface for verification (QC) of products
 - **PDS Maintenance Module** - provides an additional means by which the operator can respond to problems with job processing
 - **PDSTOP** - in response to a production parameter file (PPF) from the PDSOI calls the appropriate Production Module (PM) to process a job
 - **Production Modules (e.g., genericout)** - in response to production tasking (PPF) assembles the required product data, conducts volume-spanning calculations, generates product media, and passes status and production file information back to PDSOI

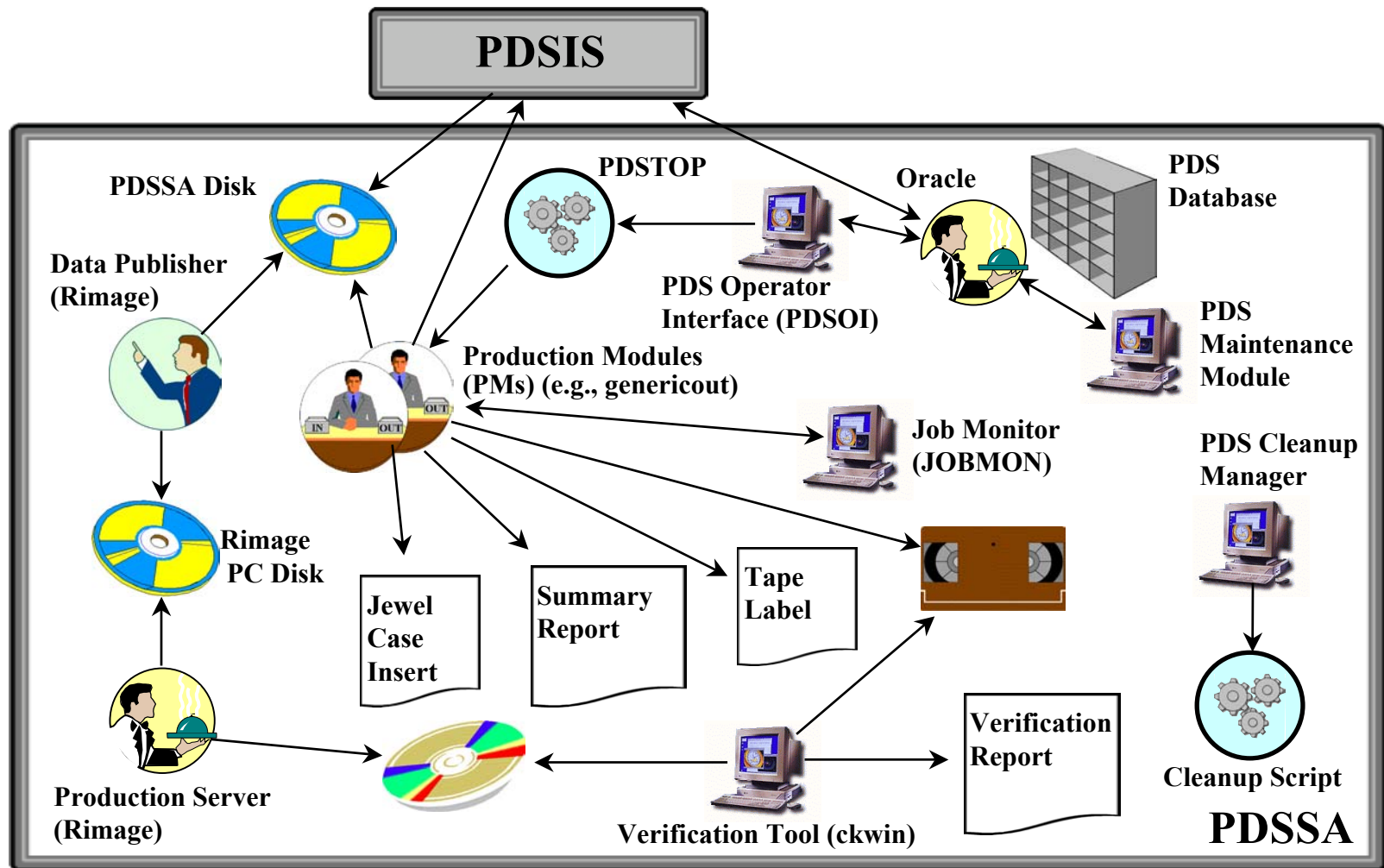
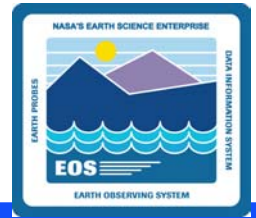
Subsystems and CSCIs: PDS (Cont.)



- **Product Distribution System Stand Alone (PDSSA) (Cont.)**
 - **Eleven major components (Cont.)**
 - **Rimage Data Publisher** - polls the PDS job control directory for files to transfer and transfers the data by ftp to the Rimage PC disk
 - **Rimage Production Server** - manages production of (writing the data to disk) the CDs and DVDs
 - **PDS Cleanup Manager** - GUI used for specifying a cleanup strategy and generating a Bourne shell script to implement the strategy
 - **Cleanup script** - script invoked via cron to implement the cleanup strategy created using the PDS Cleanup Manager
 - **Oracle database server** - manages PDS order and job data for both PDSIS and PDSSA

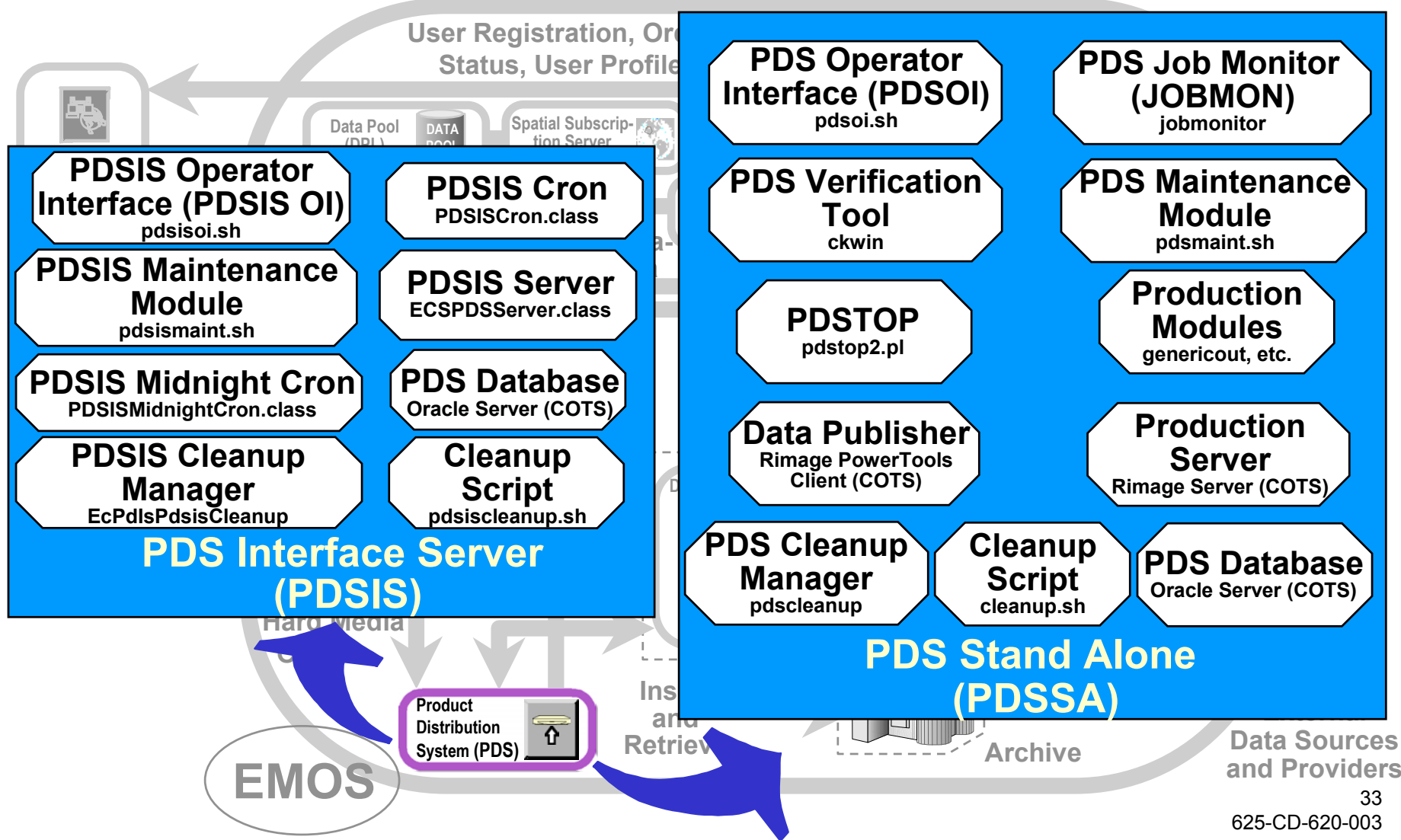
Subsystems and CSCIs: PDS (Cont.)

PDSSA Architecture and Interfaces

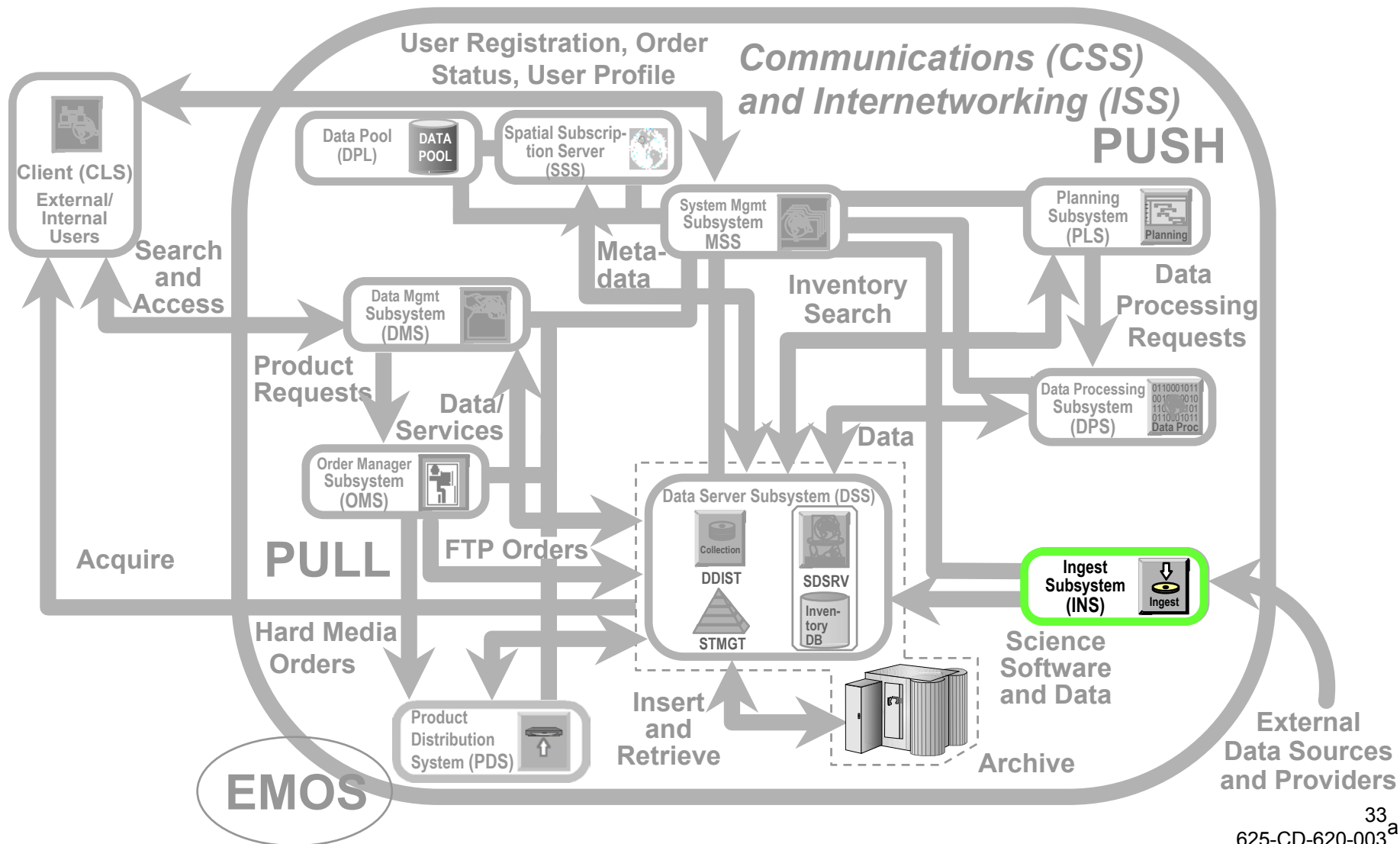
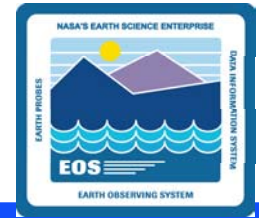


PDS

Subsystems and CSCIs: PDS



Subsystems and CSCIs: INS



Subsystems and CSCIs: INS



- **Ingest Subsystem (INS)**



- Transfer of data into ECS (SDPS repositories) in accordance with approved ICDs
- Supports varied data formats and structures
- ***Ingest Client***: A set of ingest software configured for requirements of a specific situation
- Ingest clients perform data preprocessing, such as format conversion, metadata extraction (including Landsat scene/browse derivation), and metadata validation on incoming data
- Data staged to one of two areas
 - Level 0 (L0) data from ongoing missions, and EDOS ancillary data, staged to INS working storage area
 - Non-L0 data (e.g., non-EDOS ancillary data, L1A-L4 data) staged directly to DSS working storage area
- Uses several COTS tools: RogueWave class libraries, Sybase relational database, CCS Middleware Client

Subsystems and CSCIs: INS (Cont.)



- **Ingest (INGST) CSCI**

- Gets data by various methods and transfers the data into ECS
 - Polling: transfer of data from predetermined network locations which Ingest periodically checks for new data
 - With Delivery Record
 - Without Delivery Record
 - Media: reading data from physical media; uses GUI
 - Cross-Mode Ingest: E-mail distribution notification used to create a Delivery Record File for Polling with Delivery Record
- Stores and manages request information
- Provides for data preprocessing and insertion



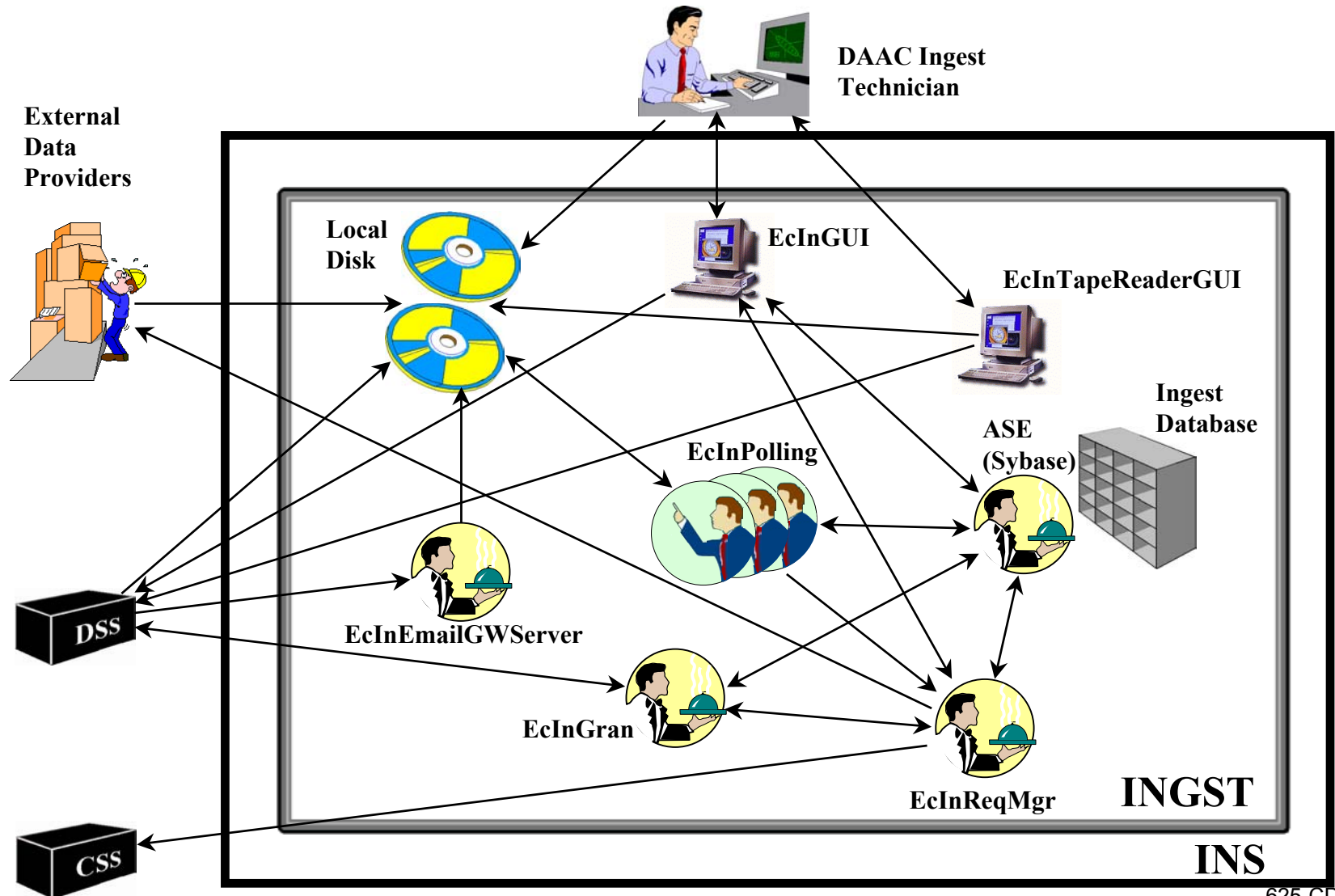
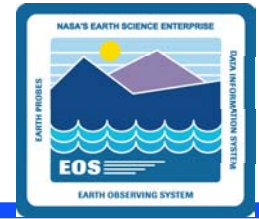
Subsystems and CSCIs: INS (Cont.)



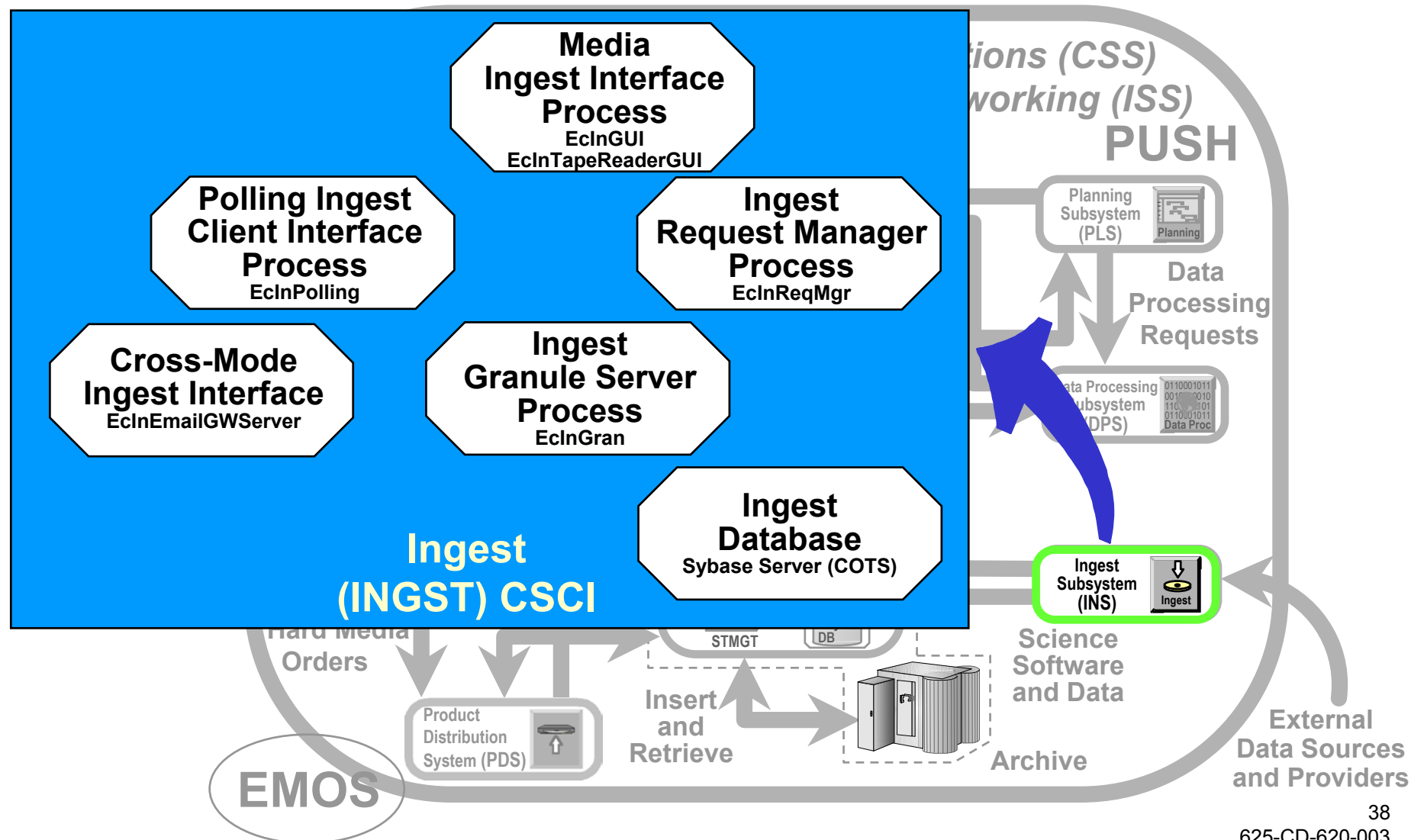
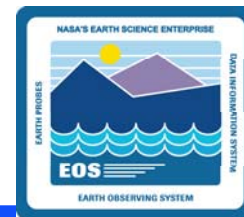
- **Ingest (INGST) CSCI (Cont.)**
 - Six major components
 - **Polling Ingest Client Interface** - creates polling request, detects new files in a specified external location, creates and submits ingest request
 - **Media Ingest Interface** - provides operators ability to perform ingest from physical media
 - **Cross-Mode Ingest Interface** - provides an E-mail gateway server to receive E-mail distribution notifications and store them as files in a location for polling with delivery record
 - **Ingest Request Manager** - manages ingest request traffic and processing
 - **Ingest Granule Server** - provides services for required preprocessing of data and subsequent insertion into Data Server
 - **Ingest Database** - stores and provides access to Ingest Subsystem internal data (e.g., Request Status, History Logs)

Subsystems and CSCIs: INS (Cont.)

Architecture and Interfaces



Subsystems and CSCIs: INS (Cont.)

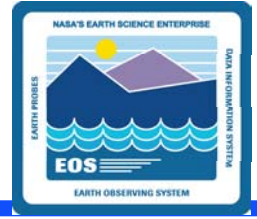


Subsystems and CSCIs: SSS



- **Spatial Subscription Server (SSS)**
 - Creating, viewing, updating Subscriptions (specification of an action and an event that initiates the action)
 - Actions: Notification, Distribution, Data Pool Insert
 - Events: Granule Insert, Granule Deletion, Metadata Update
 - Creating, viewing, deleting Bundling Orders (specification of distribution packages and criteria for package completion)
 - Minimum bundle size
 - Minimum granule count
 - Maximum bundle age
 - Bundling order information stored in Order Manager database
- **Subscription processing triggered by appearance of events in Science Data Server database**
 - Identify all subscriptions to the specified event
 - Process the actions defined in the subscriptions
- **Uses several COTS tools: Netscape Navigator, iPlanet Web Server, Sybase ASE**

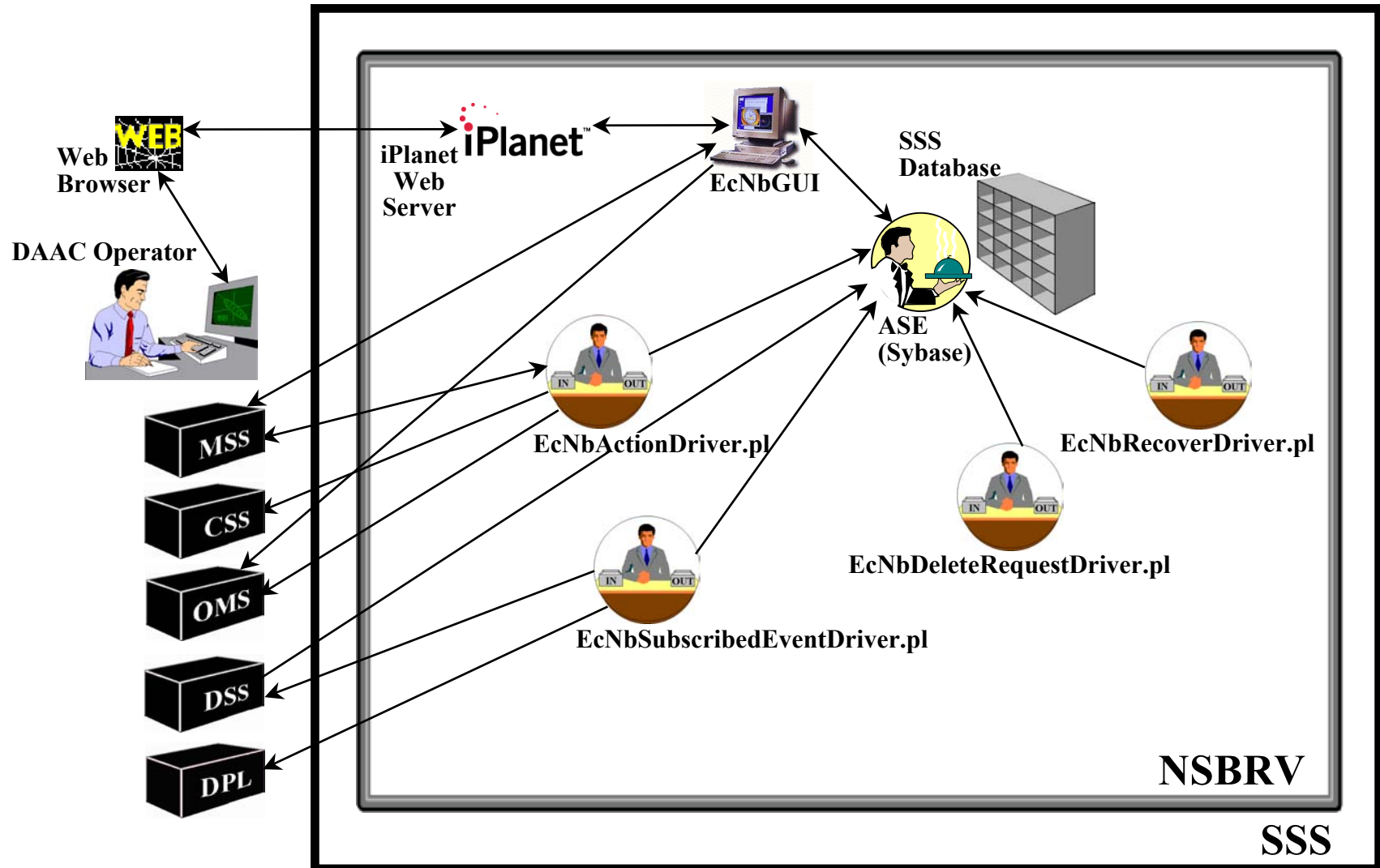
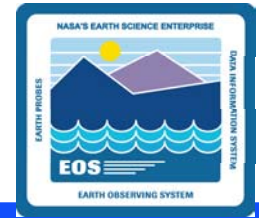
Subsystems and CSCIs: SSS (Cont.)



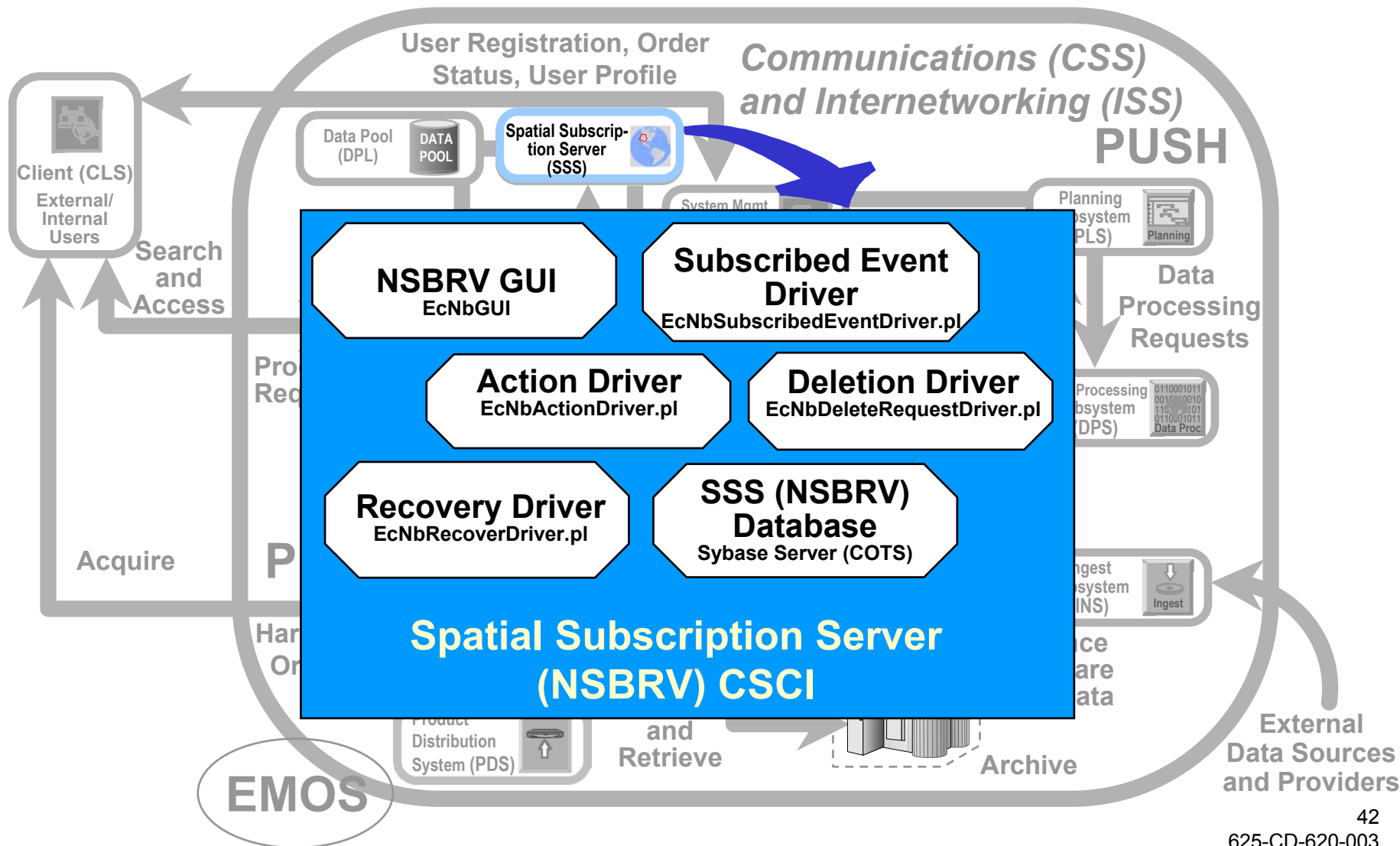
- **Spatial Subscription Server (NSBRV) CSCI**
 - Provides a Graphical User Interface (GUI) and a set of drivers for implementing subscription functions
 - Six major components
 - **Spatial Subscription Server database** - repository for all data created expressly for use by the NSBRV
 - **Subscription GUI** - tool for entering, modifying, or deleting subscriptions and bundling orders
 - **Event Queue Monitor** - multiple instances of a Perl script that monitors the event queue for new arrivals
 - **Action Queue Monitor** - multiple instances of a Perl script that monitors the action queue for new arrivals
 - **Recovery Driver** - Monitors logs for stalled events or actions; re-enqueues stalled events/actions
 - **Deletion Driver** - Works off a deletion queue to purge the database of outdated information (e.g., completed events/actions)

Subsystems and CSCIs: SSS (Cont.)

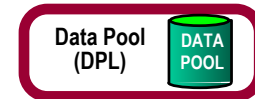
NSBRV Architecture and Interfaces



Subsystems and CSCIs: SSS (Cont.)



Subsystems and CSCIs: DPL



- **Data Pool (DPL)**
 - An on-line repository of selected granules with associated metadata and, if available, browse granules
 - Accessible through a web browser
 - Accessible through FTP
 - Data downloadable via FTP
- **Provides easy-to-use drill-down web user interface**
- **Included in EDG data search results**
- **Populated by subscriptions for Data Pool insert**
- **Uses several COTS tools: Netscape Navigator, iPlanet Web Server, Apache Web Server, wuftp (COTS FTP Server), Sybase ASE**

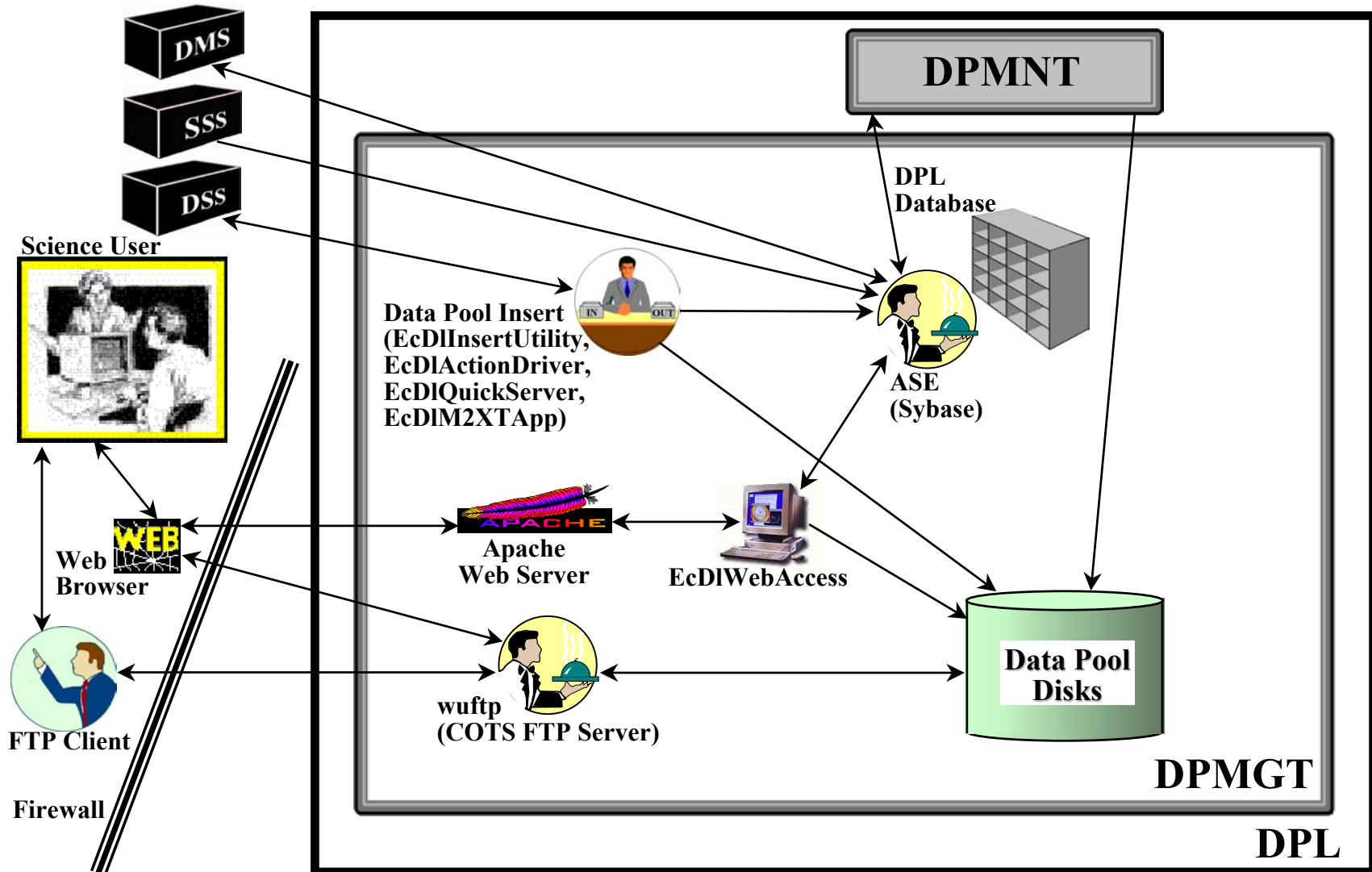
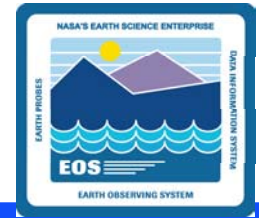
Subsystems and CSCIs: DPL (Cont.)



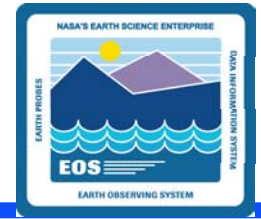
- **Data Pool Management (DPMGT) CSCI**
 - Provides on-line cache for access to selected ECS data, metadata, and browse granules
 - Permits user search and FTP download through a web interface
 - Permits user browsing and download during an FTP session
 - Provides an Insert Utility for insert of data and metadata
 - Four major components
 - **Data Pool Insert Utility** - consists of four subcomponents
 - Action Driver schedules insert actions
 - Insert Utility requests copy to the Data Pool and updates the inventory
 - Quick Server, a C++ executable, performs the copy from AMASS
 - EcDIM2XT, a java executable, translates granule metadata into XML format
 - **Data Pool Web Access** - provides easy drill-down search and FTP download for the user
 - **wuftp** - COTS FTP server for user-interactive FTP sessions
 - **Data Pool Database** - Sybase database stores Data Pool inventory and configuration information

Subsystems and CSCIs: DPL (Cont.)

DPMGT Architecture and Interfaces



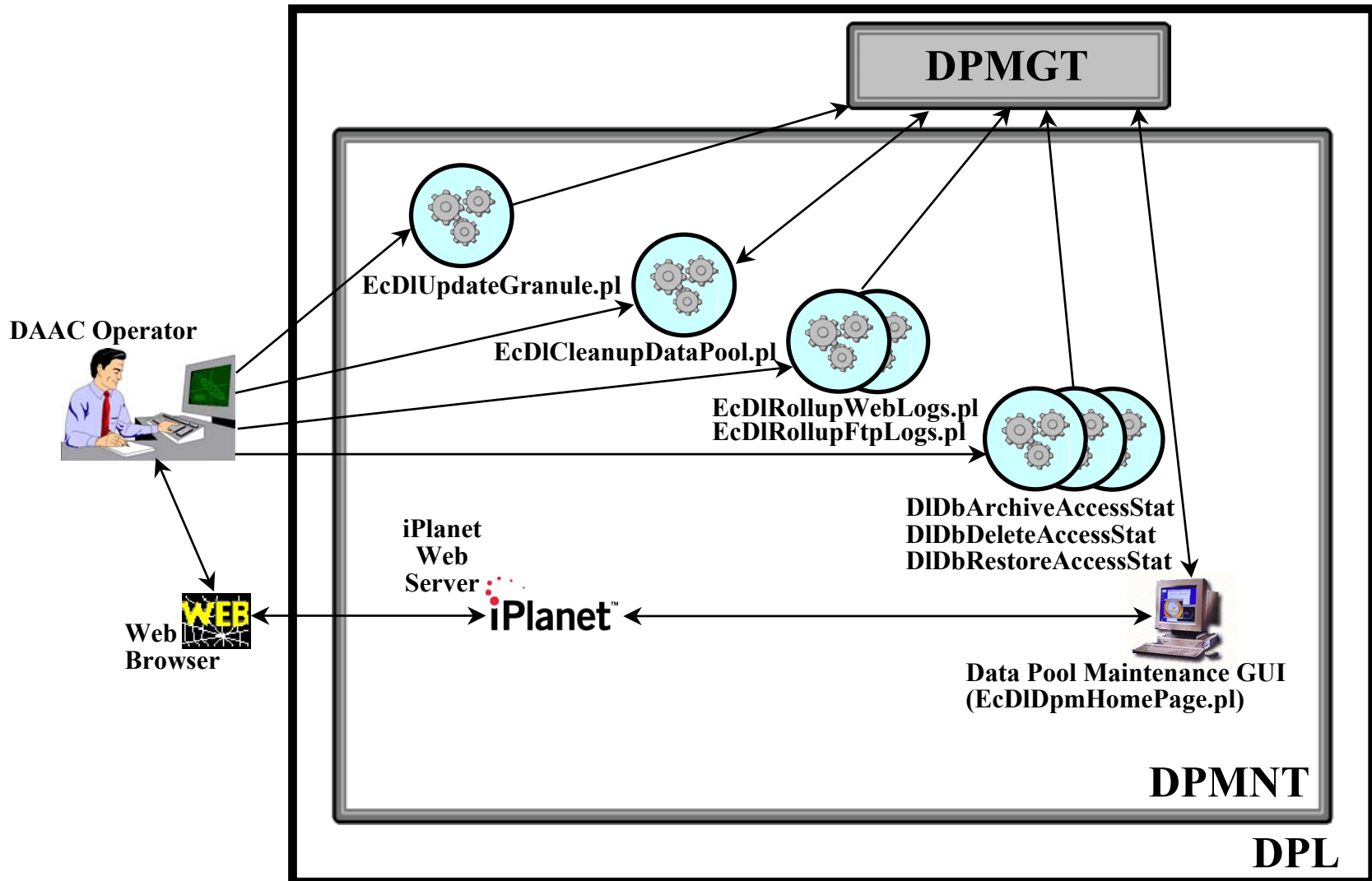
Subsystems and CSCIs: DPL (Cont.)



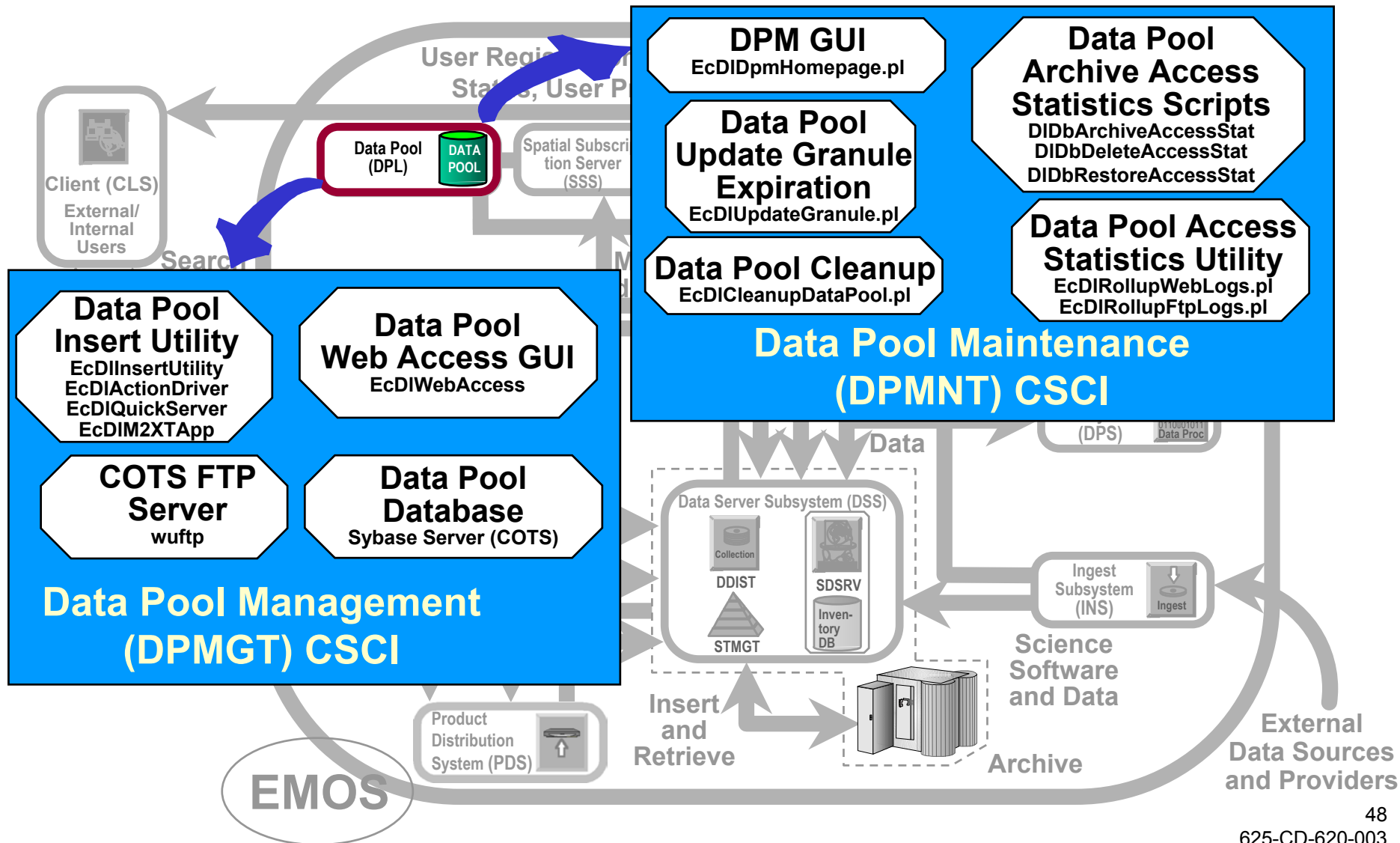
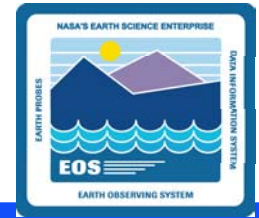
- **Data Pool Maintenance (DPMNT) CSCI**
 - Provides a maintenance GUI that allows operators to monitor and control Data Pool insert activity and control the Data Pool configuration
 - Provides utilities and scripts for Data Pool maintenance
 - Five major components
 - **Data Pool Maintenance (DPM) GUI** - a Perl web-based GUI for Data Pool monitoring and control
 - **Update Granule Expiration Utility** - a Perl utility that allows updating the expiration date and retention priority for granules in the Data Pool
 - **Data Pool Cleanup** - a Perl utility that removes expired granules from the Data Pool and database (normally run as a cron job)
 - **Data Pool Access Statistics Utility (DPASU)** - Perl utilities that extract access statistics from logs and roll up access information for storage in the Data Pool database
 - **Data Pool Archive/Delete/Restore Access Statistics** - shell scripts to manage access statistics

Subsystems and CSCIs: DPL (Cont.)

DPMNT Architecture and Interfaces



Subsystems and CSCIs: DPL (Cont.)



Subsystems and CSCIs: CLS



- **Client Subsystem (CLS)**
 - **User access to ECS services for ASTER**
 - **Permits Data Acquisition Request to task ASTER instrument**
 - **Supports request of ASTER On-demand Products (not used)**
 - **Provides user authentication and User Profile information to the Search and Order tool**
 - **Search and retrieval of data are performed by the EOS Data Gateway (Version 0 Web Client)**
 - **Includes applications programs accessible through user interfaces**
 - **EOSView**
 - **ASTER Data Acquisition Request (DAR) Tool**
 - **On-Demand Form Request Manager (ODFRM) (not used)**
 - **Uses several COTS tools: Netscape Navigator, Netscape Enterprise Server, XVT (widget set and development tool for EOSView), and Interactive Data Language (IDL) (used in EOSView visualization features)**

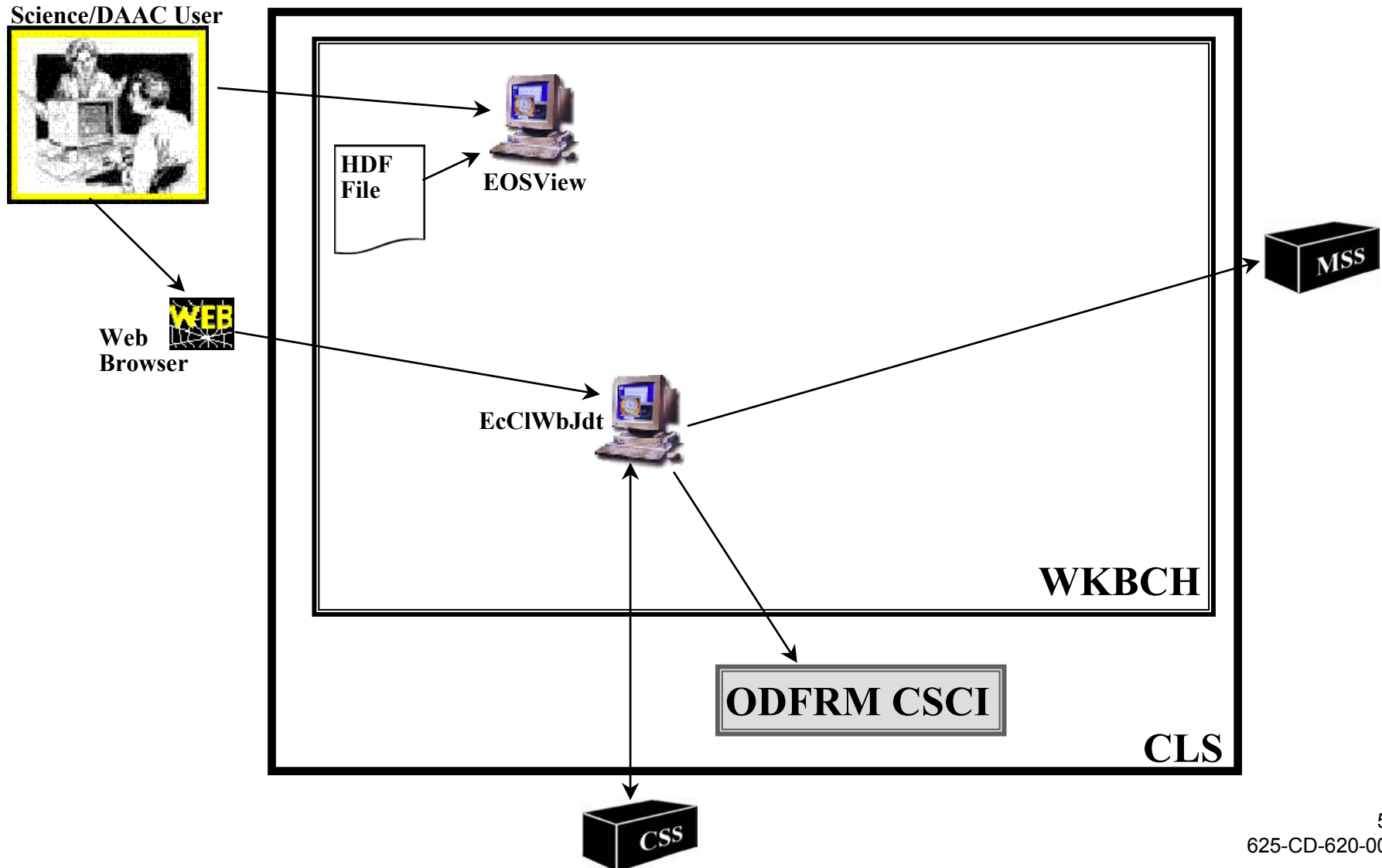
Subsystems and CSCIs: CLS (Cont.)



- **Workbench (WKBCH) CSCI**
 - Includes a set of application programs that implement functions of the CLS science user interface
 - Release 6 Workbench includes 2 tools
 - **EOSView** (X/Motif-based)
 - **ASTER DAR Tool** (Java/HTML-based)

Subsystems and CSCIs: CLS (Cont.)

WKBCH Architecture and Interfaces



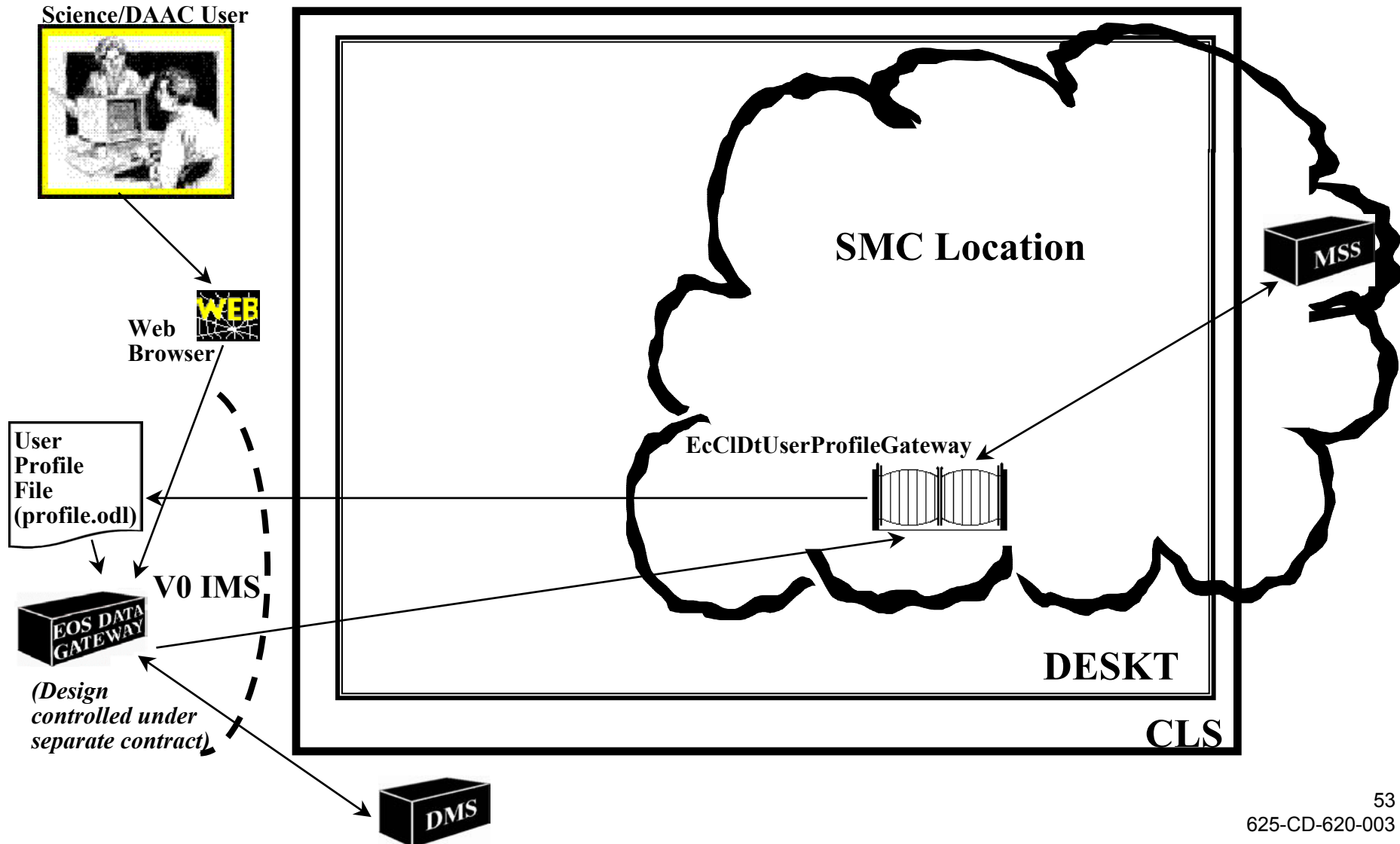
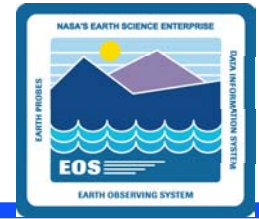
Subsystems and CSCIs: CLS (Cont.)



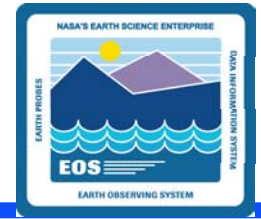
- **Desktop (DESKT) CSCI**
 - Provides a gateway server for communication with MSS User Registration Server to support seamless user registration through the EOS Data Gateway (EDG) web client and to obtain or update user profile information
 - **User Profile Gateway** - provides user profile information to the EDG for ECS users
 - User authentication
 - Submit/Update user information in profile

Subsystems and CSCIs: CLS (Cont.)

DESKT Architecture and Interfaces



Subsystems and CSCIs: CLS (Cont.)

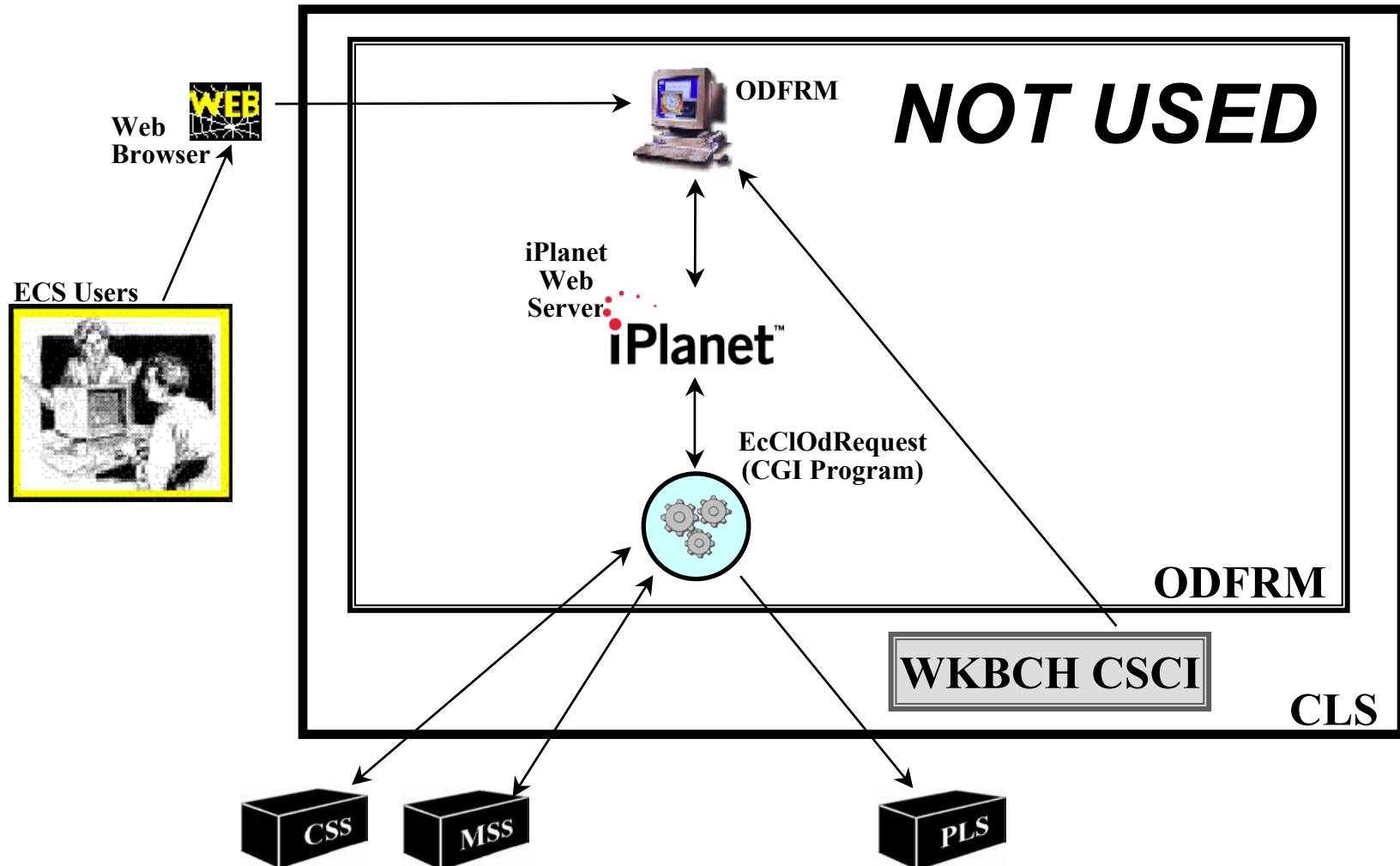
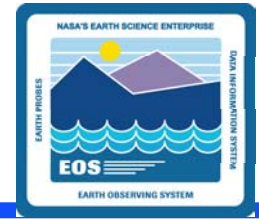


- **On-Demand Form Request Manager (ODFRM) CSCI**
 - Supports attachment of a Data Processing Request (DPR) to an ASTER Data Acquisition Request (a required capability that is not used)
 - **ODFRM** HTML pages and Common Gateway Interface (CGI) programs
 - Creation of an on-demand processing request and its submission to the Planning Subsystem (PLS) is now done through the EOS Data Gateway (EDG) tool
 - **ASTER on-demand products**
 - **ASTER L1B***
 - **ASTER DEM (Digital Elevation Model)***
 - **ASTER higher-level products (AST_04, AST_05, AST_06V, AST_06T, AST_06S, AST_07S, AST_07V, AST_09T, AST_09V, AST_09S, AST_08)**

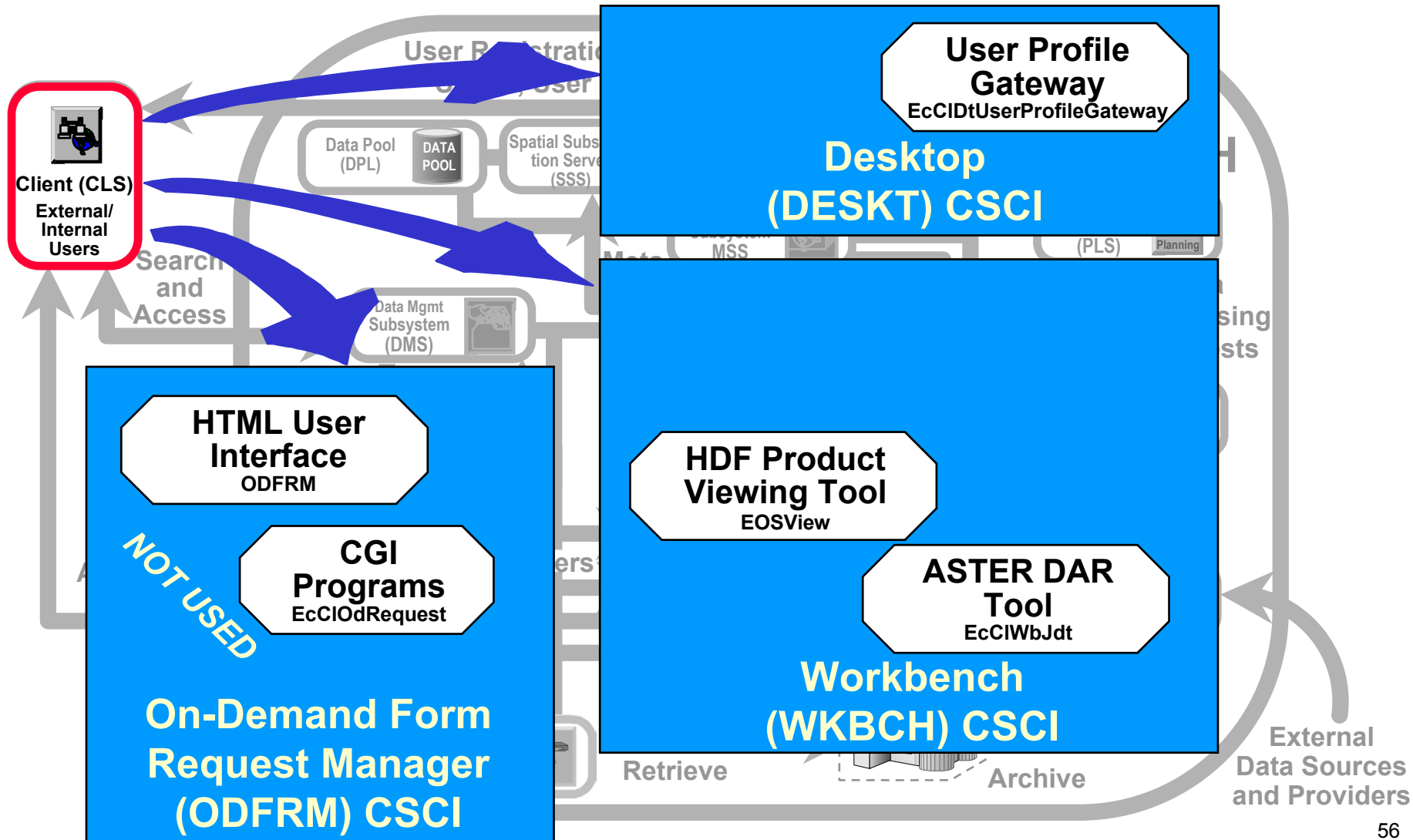
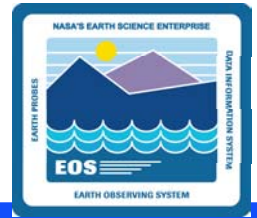
* **Note: Requires special privilege (in User Profile) to use ODFRM to order this product**

Subsystems and CSCIs: CLS (Cont.)

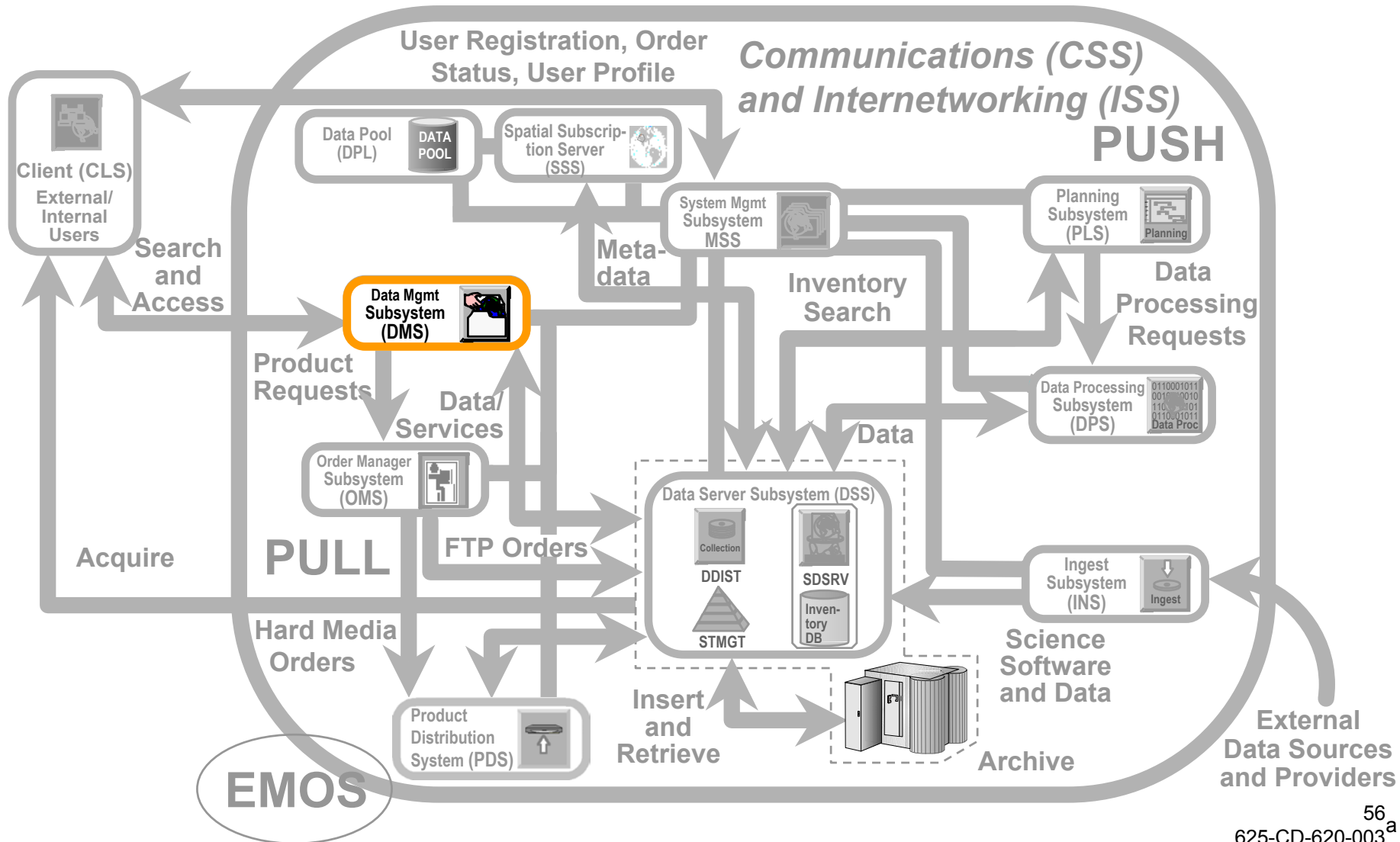
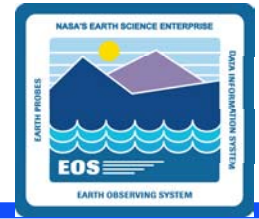
ODFRM Architecture and Interfaces



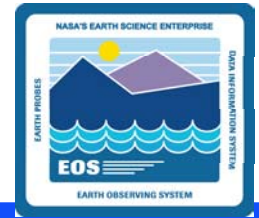
Subsystems and CSCIs: CLS (Cont.)



Subsystems and CSCIs: DMS



Subsystems and CSCIs: DMS



- **Data Management Subsystem (DMS)**
 - Provides one-way catalog interoperability between ECS and the V0 Information Management System (IMS)
 - Supplies gateway processes to translate requests between V0 protocol and ECS
 - Maintains a Data Dictionary that stores ECS data collection information (i.e., collection metadata, attributes, valid keywords) and mappings between this information and V0 to permit translation of requests between the systems
 - Uses several COTS tools: RogueWave class libraries, Builder Xcessory (GUI builder tool), and Sybase ASE Server (for Data Dictionary database search and update)

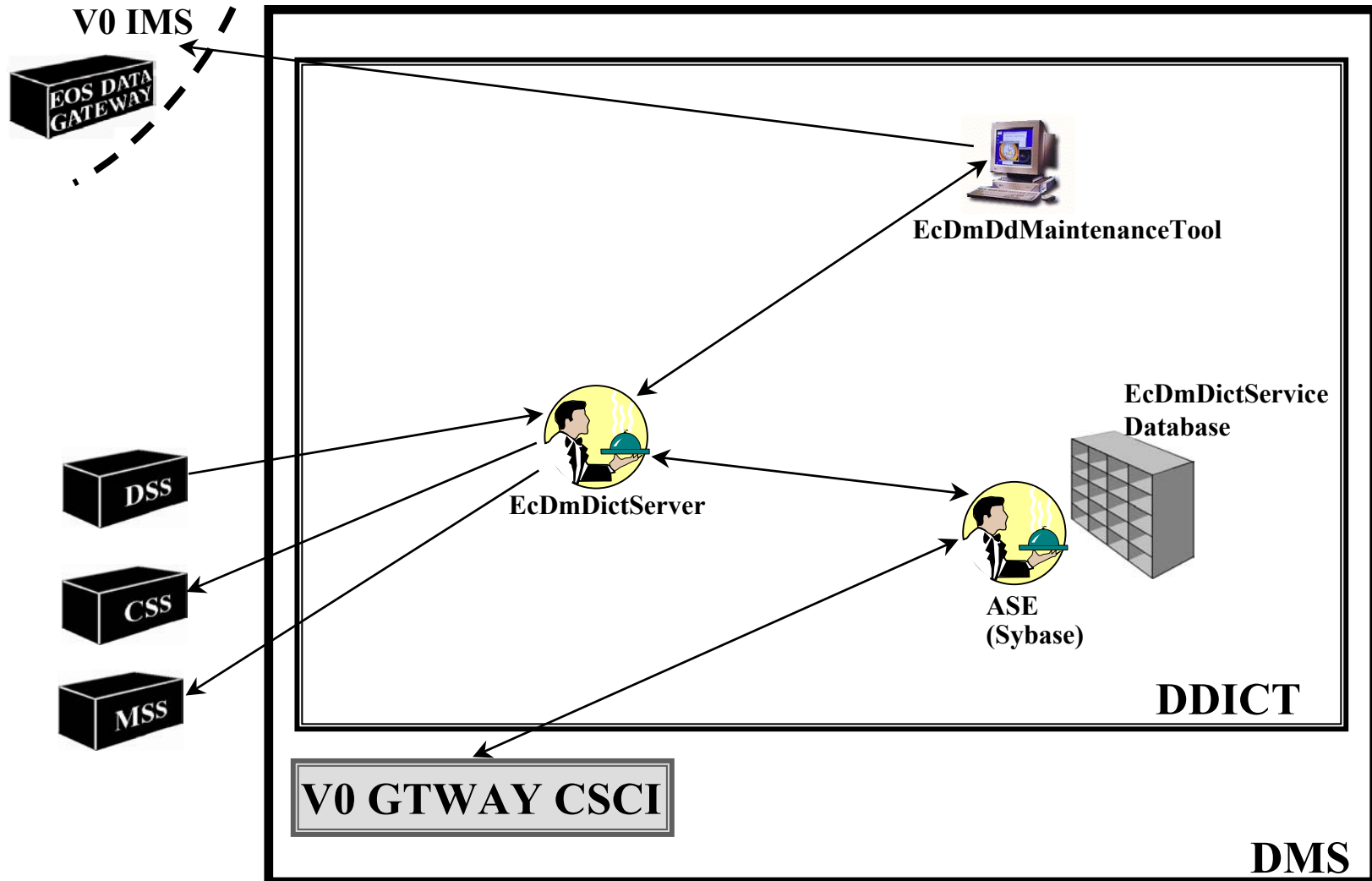
Subsystems and CSCIs: DMS (Cont.)



- **Data Dictionary (DDICT) CSCI**
 - Manages definitions of data collections including metadata, data domains (valid values), and data location
 - Stored in a relational Database Management System (DBMS)
 - Three major components
 - **Data Dictionary Server** - provides DDICT client processes the ability to perform data searches, inserts, updates, or deletes to the DDICT database
 - **Data Dictionary Maintenance Tool** - provides a GUI to insert, update, or delete schema information held in the DDICT database, and allows operations staff to modify database attributes (e.g., valids, mapping)
 - **Data Dictionary ASE Server** - COTS database server

Subsystems and CSCIs: DMS (Cont.)

DDICT Architecture and Interfaces



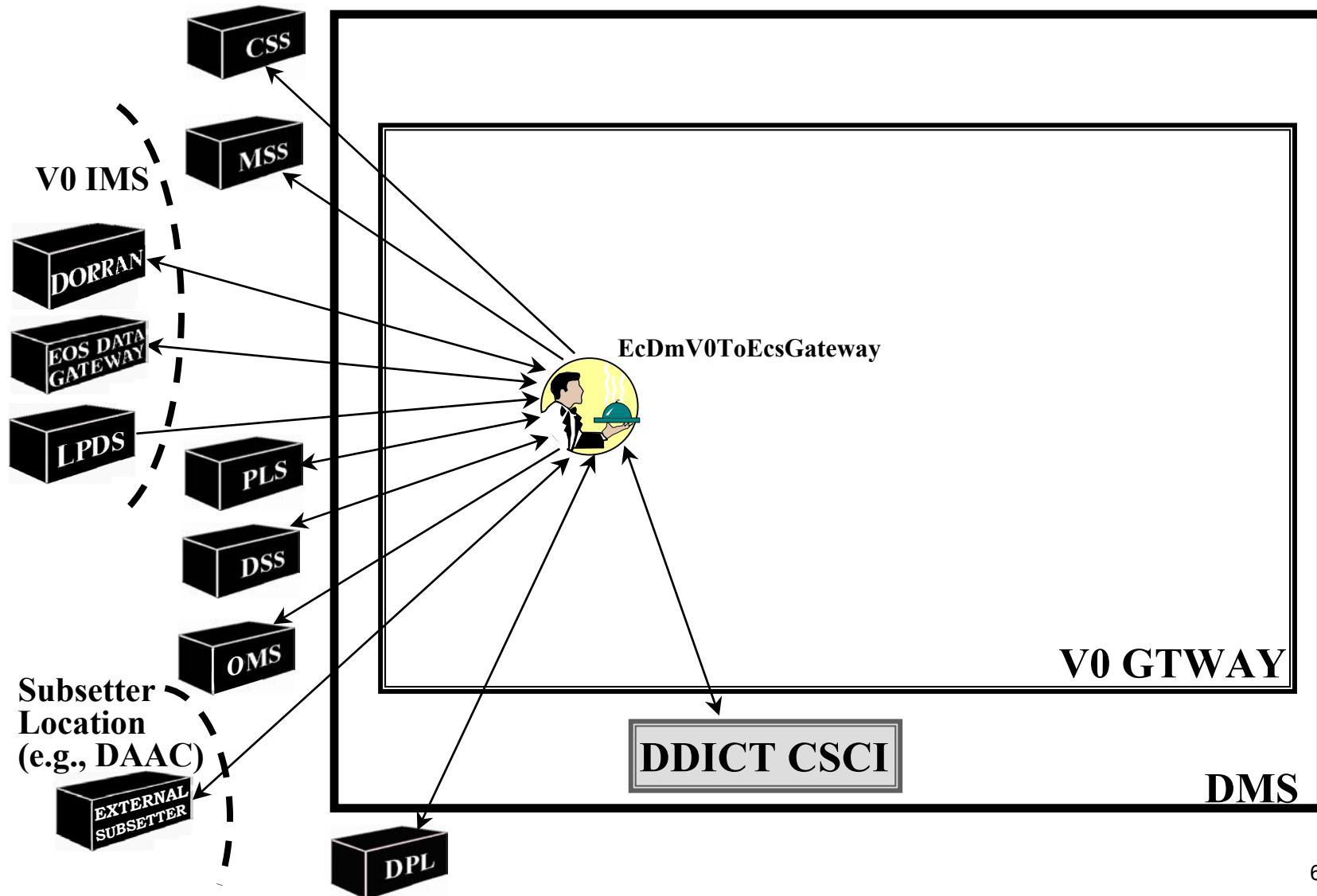
Subsystems and CSCIs: DMS (Cont.)



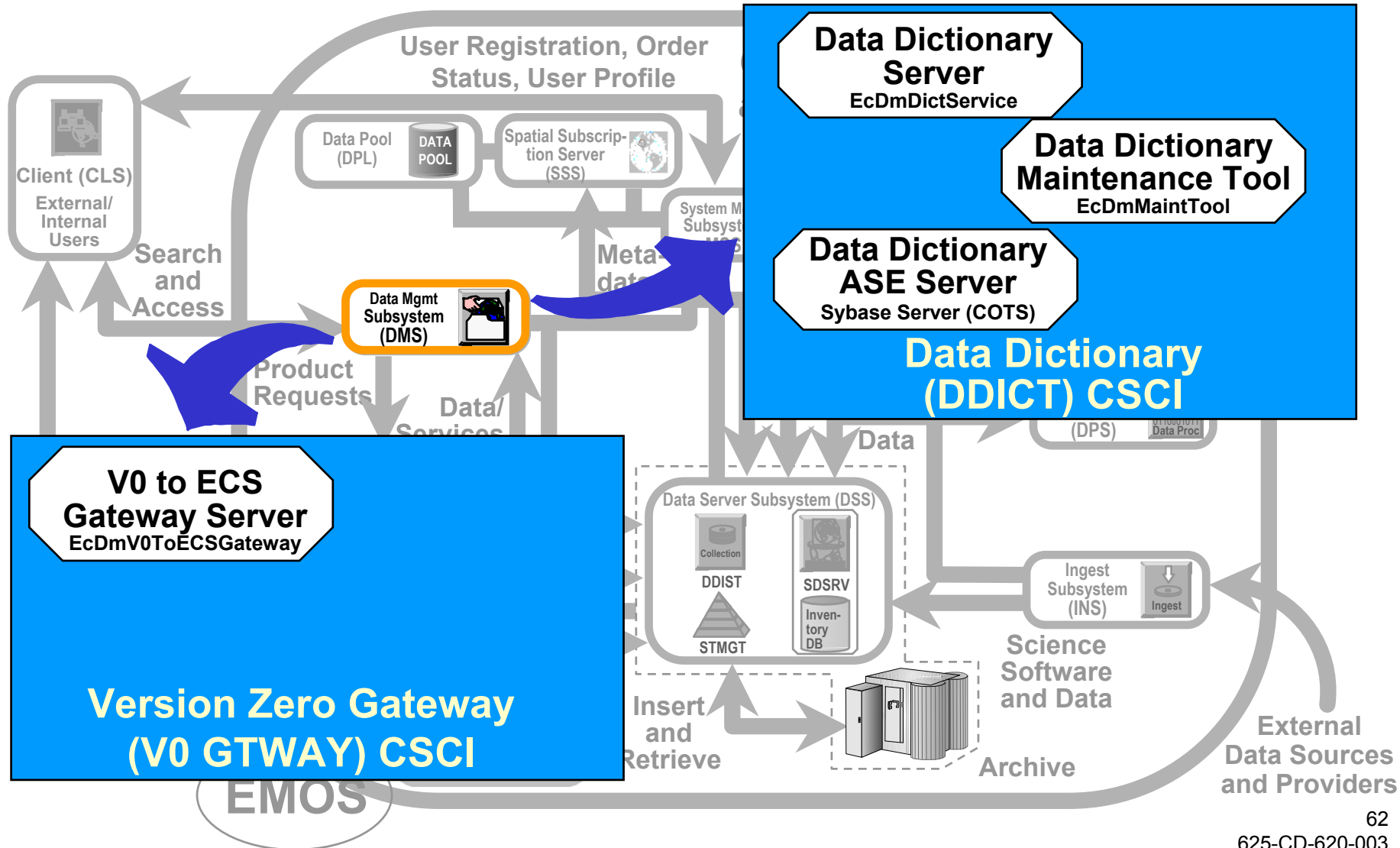
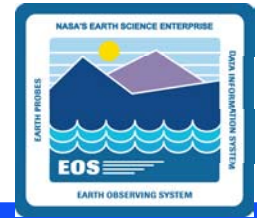
- **Version Zero Gateway (V0 GTWAY) CSCI**
 - Provides one-way interoperability with the V0 Information Management System (IMS) for inventory searches, browse requests, product orders, and price estimate requests; search results include links to URLs for Data Pool products
 - At EDC, transmits Landsat 7 and ASTER product requests to the V0 IMS to allow billing by the billing and accounting system
 - Distributed Ordering, Reporting, Researching, and Accounting Network (DORRAN)
 - Queries between V0 IMS and the ECS V0 GTWAY use the Object Description Language (ODL) format
 - One component
 - **V0 to ECS Gateway Server** - allows use of the EOS Data Gateway Web Client to search and request data and services defined within ECS

Subsystems and CSCIs: DMS (Cont.)

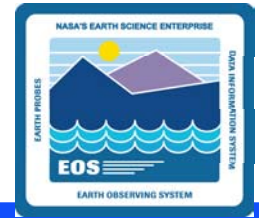
V0 GTWAY Architecture and Interfaces



Subsystems and CSCIs: DMS (Cont.)

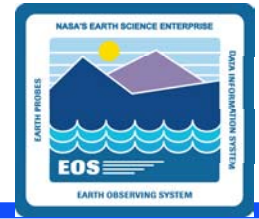


Subsystems and CSCIs: OMS



- **Order Manager Subsystem (OMS)**
 - Manages all orders arriving through the DMS V0 Gateway (i.e., from EDG, ECHO, and GDS users) and orders submitted by the Spatial Subscription Server (NSBRV)
 - Provides an Order Manager Server that receives the data distribution orders and forwards them to the appropriate ECS services
 - Orders for electronic distribution sent to SDSRV
 - Orders for media distribution sent to PDS
 - Provides a Graphical User Interface (GUI) for monitoring and controlling the operations of the Order Manager Server and for responding to Operator Intervention Requests generated by the Order Manager Server
 - Uses several COTS tools: RogueWave class libraries, Sybase Open Client, Sybase ASE Server

Subsystems and CSCIs: OMS (Cont.)



- **Order Manager Server (OMSRV) CSCI**
 - **Receives Product Distribution Requests from the V0 Gateway and from the Spatial Subscription Server**
 - **Immediately stores request information in a relational Database Management System (DBMS)**
 - **Validates the requests for correctness (e.g., request size, media capacity, accessibility, validity of UR)**
 - **Submits valid requests to SDSRV or PDS**
 - **Generates Operator Interventions for invalid requests**
 - **Two major components**
 - **Order Manager Server** - interacts with the Order Manager Database, Product Distribution System, and Science Data Server
 - **Order Manager ASE Server** - COTS database server

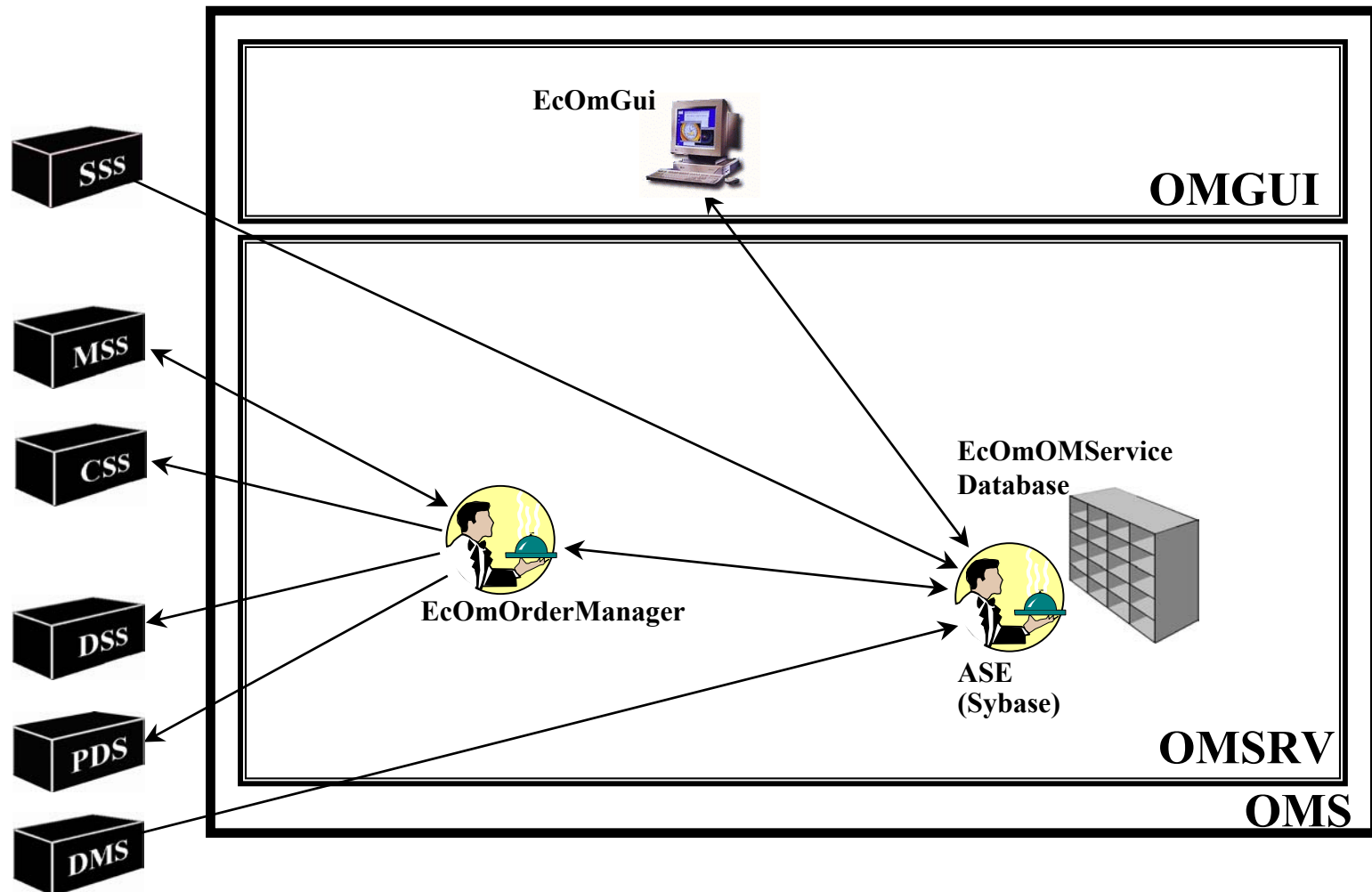
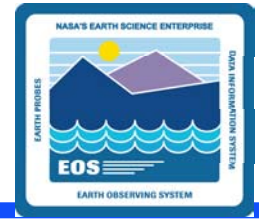
Subsystems and CSCIs: OMS (Cont.)

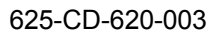


- **Order Manager GUI (OMGUI) CSCI**
 - Based on web standards
 - Communicates directly with the Order Manager Service database (not through a server)
 - Permits monitoring and control of the OMSRV (e.g., view status of queues, suspend and resume queues, view and modify configuration parameters, monitor statistics)
 - Monitor open Operator Interventions for invalid requests; manage interventions; view closed interventions; view distribution requests and resubmit those that were failed, canceled, aborted, or shipped; view order information and user profile data; view, update, or cancel bundling orders
 - One major component
 - **Order Manager GUI** - interacts with the Order Manager Database

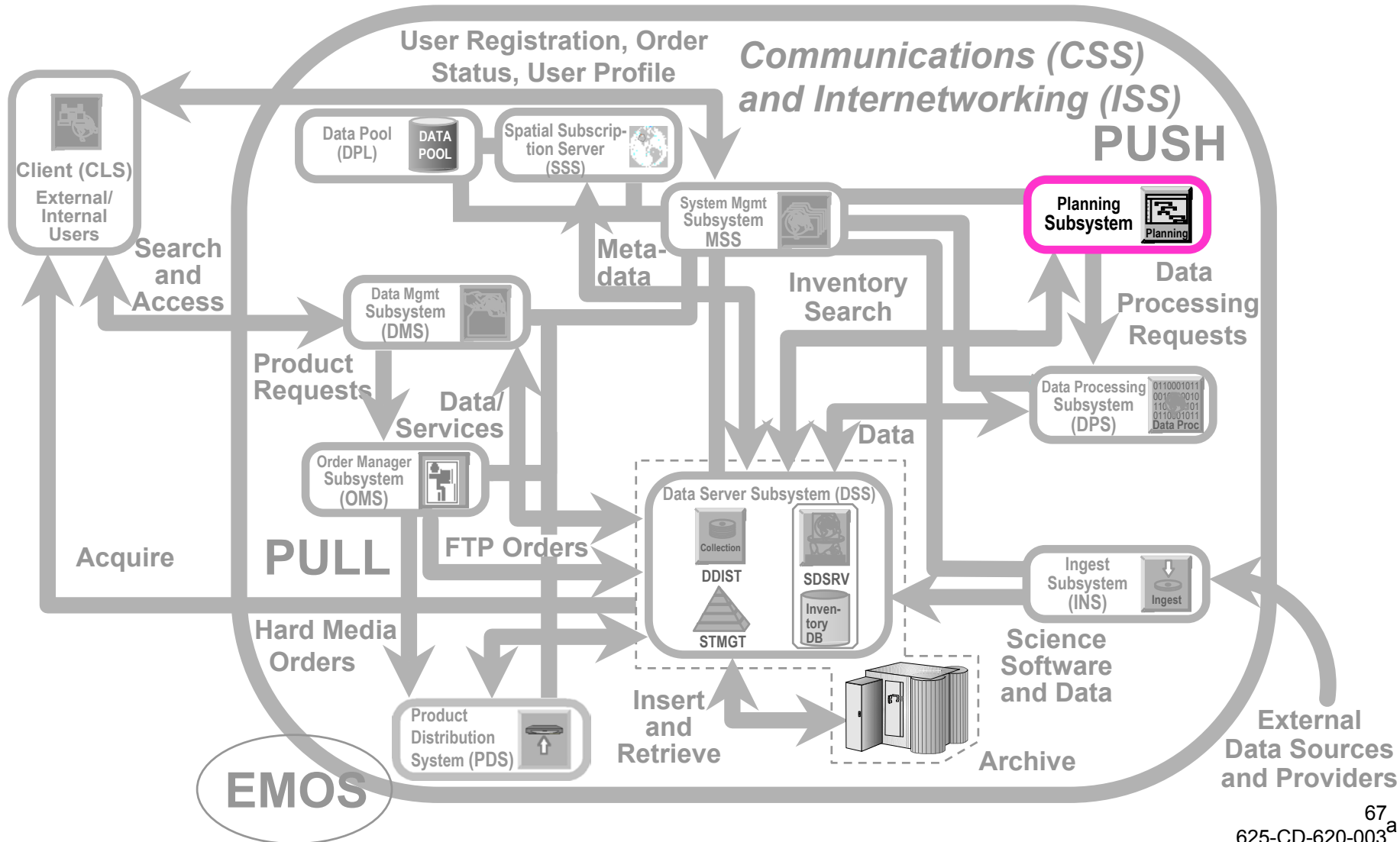
Subsystems and CSCIs: OMS (Cont.)

OMS Architecture and Interfaces





Subsystems and CSCIs: PLS



Subsystems and CSCIs: PLS



- **Planning Subsystem (PLS)**



- Allows operations staff to define data processing tasks to be performed at a site
- Generates efficient plans for scheduling defined data processing and reprocessing tasks according to production rules that define how a Product Generation Executive (PGE) is to run
- Coordinates production with the Data Server and Data Processing subsystems to achieve a highly automated production system
- Interfaces with the Algorithm Integration and Test Tools CSCI within DPS for information on Product Generation Executives (PGEs)
- Permits entry of Production Requests and generates resulting Data Processing Requests (DPRs)
- Uses a set of Raytheon-provided COTS libraries as a basis for its scheduling components (Resource Planning Workbench and Production Planning Workbench)

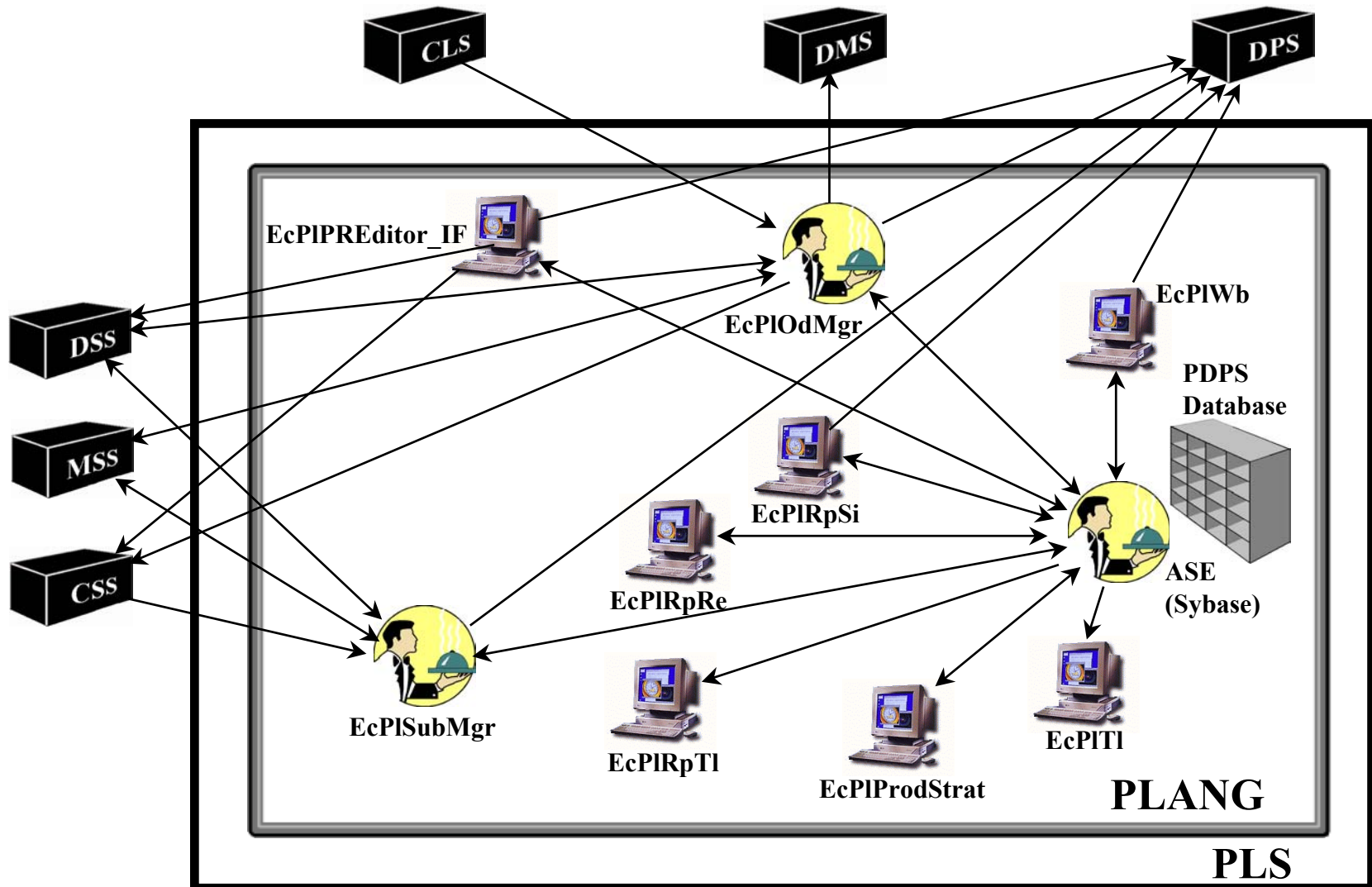
Subsystems and CSCIs: PLS (Cont.)



- **Production Planning (PLANG) CSCI**
 - **Seven major components**
 - **Data Store** - handles insertion of data for planning and processing activities into the PDPS shared database
 - **Resource Planning Workbench** - GUIs for preparing a site resource schedule [Resource Editor (EcPIRpRe), Scheduling Interface (EcPIRpSi), Timeline (EcPIRpTI)]
 - **Production Request Editor** - GUI for submitting production requests that describe the data products to be produced; uses PGE descriptions to generate the DPRs necessary to meet the requests (EcPIPREditor_IF)
 - **Production Planning Workbench** - GUIs for preparing a site production schedule [Workbench (EcPIWb) and Timeline (EcPITI)]
 - **On-Demand Production Request Manager** - receives requests for data from the scientist via the EDG web page, generates the necessary Production Request, submits it for processing, and distributes the data to the scientist (EcPIOdMgr)
 - **Subscription Manager** - server to manage receipt of subscription notifications from the Data Server via SBSRV (EcPISubMgr)
 - **Production Strategies GUI** - used to create a set of planning priorities to be applied to each DPR in a plan (EcPIProdStrat)

Subsystems and CSCIs: PLS (Cont.)

PLANG Architecture and Interfaces



Subsystems and CSCIs: PLS (Cont.)

